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Australian

PC WORLD

About IBM PCs and compatibles

JAN/FEB 1985

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JAN/FEB 1985

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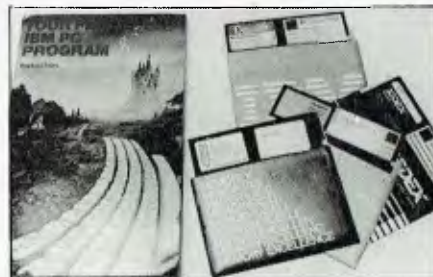
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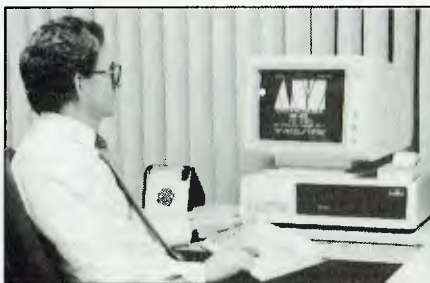
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An updated comprehensive listing of popular PC programs.

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Australian



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SOURCEWARE EXPANDS COMMUNICATIONS RANGE:

Local distributor Sourceware has established itself as a force to be reckoned with this year, by picking up distributorships for two crucial PC communications products. The first is the world-class PC award-winning Crosstalk XVI communications package, developed by Microstuf Inc in the US. This package will be manufactured in Australia under licence and distributed by Sourceware. Crosstalk enables users of MS-Dos, PC-Dos or CP/M-86 to communicate with most other computers, including mainframe systems and PC-based bulletin boards.

Local manufacture of Crosstalk will allow Sourceware to sell the package for \$229, a reduction of \$40 on present prices. Crosstalk enables PC users to communicate with services such as OTC's Minerva, ACI's Ausinet and The Australian Beginning. The program offers high-speed data capture and automated log-in and sign-off procedures.

Sourceware's other PC communications coup was achieved by obtaining local distribution rights to the popular NetComm PC In/Modem (see review p47), which features Hayes

Smartmodem compatibility and videotex interface software. The In/Modem also features auto-dialling, auto-answer and auto-disconnect, and will support both US (Bell) and Australian (CCITT) communications protocols, at either 300 or 1200 bits/sec, and 1200/75 bits/sec for videotex.

Although Sourceware has not yet released details on whether these latest additions to its range are to be bundled, the combination of these two products would give local PC users a powerful communications capability, and may prove to be an offer too hard to resist.

IBM slows AT production:

IBM has slowed production of the enhanced version of its PC AT and rescheduled deliveries for that model, the company's Entry Systems Division acknowledged last week.

"IBM is unable to fill all of its orders through the first quarter of 1985", a spokesman said. Major accounts placing new orders for the enhanced AT could have to wait up to nine months, he said.

The enhanced model adds a 20M-byte hard disk drive and

more memory to the basic AT. The spokesman attributed the production slowdown to shortages of key components, including the hard disk drive. Despite some user reports of difficulties with that drive, he said "there are no problems with the systems that we have shipped".

Strong demand for the enhanced AT, which "has far exceeded IBM's expectations," was the other factor that made rescheduling a necessity, the spokesman said. ATs have

been in short supply since shipments began. Both basic and enhanced ATs have been sold as standalone systems.

The hard disk drive is a prerequisite for the AT to act as a multi-user system (under IBM's PC Xenix) or as the file server for IBM's PC Network. PC Xenix and the PC Network Program will be available in the first quarter of this year, IBM says.

Overall AT production is rising, as IBM is boosting production of the basic AT.

IBM announces software family:

IBM Australia has introduced its most comprehensive family of PC software products. The IBM Personal Computer Assistant Series provides many popular PC functions. Information can be used with several Assistant Series applications and can be transferred easily among the different programs.

The Assistant Series, which can be used with the full line of IBM PCs, includes:

- IBM Personal Computer Writing Assistant (\$229), a word processing program that includes the IBM Personal Computer Word Proof spelling aid.

- IBM Personal Computer Filing Assistant (\$230), a file program that enables individuals to design filing systems, add or delete items, and search and update the records.

- IBM Personal Computer Reporting Assistant (\$200), which sorts and organises files generated with IBM Filing Assistant or IBM Reporting Assistant.

- IBM Personal Computer Graphing Assistant (\$227), which produces up to four line bar or pie graphs as a single chart using information from IBM Filing Assistant or IBM Reporting Assistant.

The Assistant Series also includes three sets of pre-defined solutions that, when used with IBM Filing Assistant, can speed and simplify record keeping for homes and businesses. These are the Home Solutions (\$95), Executive Solutions (\$95) and Accounting Solutions packages (\$125).

The Assistant Series application programs can be used with the IBM Personal Computer, the IBM Personal Computer XT and the IBM Portable Computer, all with a minimum 128K bytes of user memory and a double-sided diskette drive.

The Assistant Series will be available through IBM's authorised dealer network and through IBM.

3Com EtherSeries

Local Network Communication for Personal Computers

EtherSeries is a family of hardware and software communication products for increasing the productivity of personal computer users. EtherSeries networks provide

peripheral sharing, information access, and personal communications, saving you time and money.

NETWORK HARDWARE



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EtherLink connects your personal computer to Ethernet. It is a user installable plug-in plug-in board that incorporates the latest VLSI technology. Once you're "on the network", you are ready to take advantage of the EtherShare™, EtherPrint™, EtherMail™, and Remote EtherMail™ network services.



3Com Network Servers

EtherSeries networks provide disk sharing, printer sharing, and electronic mail. These functions are provided by network servers, which are specially designated computers with disks and printers that the other computers can use.

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NETWORK SOFTWARE



3Com EtherShare

The EtherShare software lets many personal computer users share the hard disk on a network server. The shared hard disk saves money and allows virtually all MS DOS software to be used with EtherShare.



3Com EtherPrint

EtherPrint lets many personal computer users share the printer's capability and cost via the network.



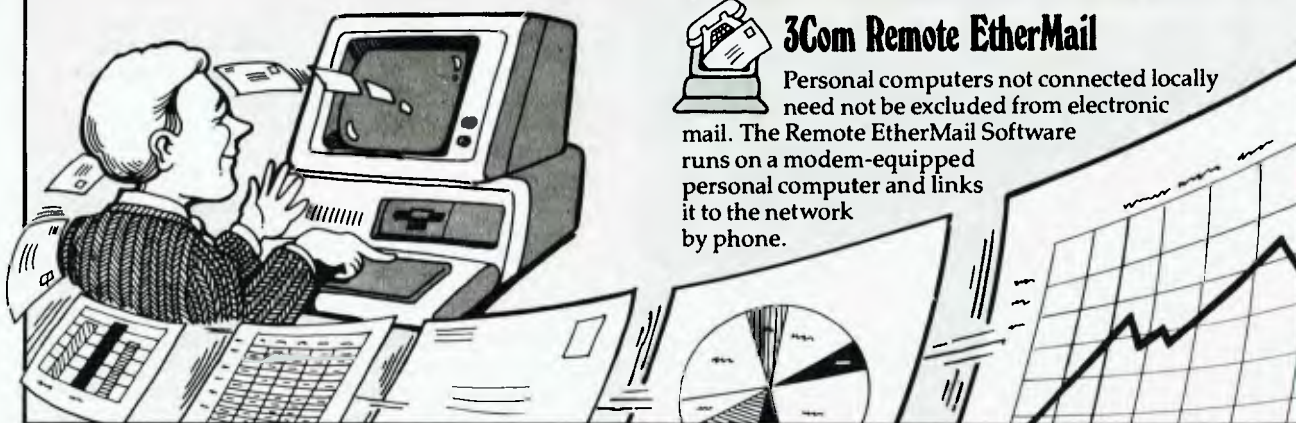
3Com EtherMail

EtherMail can be used to send messages and memos, even documents and files, to other personal computer users over the network. Judged the "Software Product of the Year" by *International Resource Development, Inc.*, EtherMail is powerful, yet easy to use electronic mail package.



3Com Remote EtherMail

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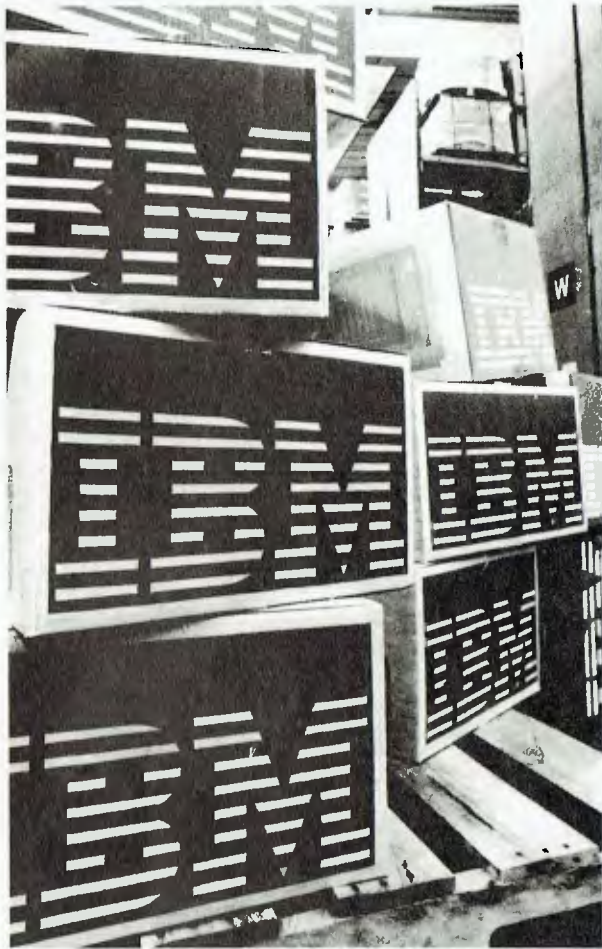
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BRITISH ATs IN SHORT SUPPLY:

Shipments of the IBM PC AT began in the UK last week — but component supply problems mean that accumulated demand for IBM's new multi-user micro will not be met.

Tim McGinn, dealer marketing manager for IBM UK, described shipments of the PC AT as being "very constrained" because of problems with the Intel 80286 processor and with the disks. Production has already begun at IBM's manufacturing plant in Greenock, Scotland, but stocks of incomplete machines are building up waiting for further supplies, arousing speculation on whether IBM will take up its manufacturing rights to the Intel chip.

But despite the clamoring from dealers for volume shipments of the PC AT, the company remains very satisfied with its personal computer business. McGinn denied reports that sales of the PC XT were being undercut by demand for the technologically superior PC AT — despite significant price reductions on the PC XT.

"The XT model is still doing extremely well, and the original PC version is still holding its own," he said.

Compaq artificial heart:

The mechanical heart of William Schroeder, 52-year-old artificial heart recipient at the Humana Heart Institute in Kentucky, has been monitored since its installation with the help of a Compaq portable PC. Computer technology from Hewlett-Packard and Apple also played a role in the November 25 operation, the second artificial heart implant ever performed.

H-P transducers within the artificial heart convert air pulses to electrical signals that the Compaq can measure. The signals indicate the rate of airflow leaving the heart as the heart fills with blood before each beat. The Compaq multiplies the air volume by the heart rate to yield the cardiac output, which it then uses to produce a flow curve of cardiac output based on every second or third beat of the artificial heart.

The Compaq was chosen for its portability and for its IBM PC compatibility, as the Institute uses a PC AT for data storage. Software for the Compaq was written by Symbion Inc, the original developers of the artificial heart. Although the original code was written on an Apple IIe, it was later transferred to the Compaq, which was considered more convenient for the operating room.

Kaypro enters compatibles market:

Kaypro Corp, maker of 8-bit CP/M portable computers for budget-conscious users, has unveiled its first IBM PC compatible, a 16-bit transportable that features a 10M-byte hard disk and a full complement of free software.

Undeterred by the prospect of entering the crowded PC-clone market, Kaypro is pitting its \$US3295 Kaypro 16 against the \$US4395 IBM PC XT on the basis of price.

The Kaypro machine, as well as being cheaper, includes a monitor and application software that costs extra with the basic PC XT system.

The Kaypro 16 looks every bit as utilitarian as the company's other machines. With one double-sided, double-density, 360K-byte floppy disk drive, the 8088-based system in a metal box comes with a 9in green phosphor display, the MS-Dos operating system, GW-Basic by Microsoft, and Micropro's line of Wordstar, Mailmerge, Calcstar, and Infostar Plus.

Also included is Mite, a telecommunications program which allows the Kaypro 16 to communicate with other computers, including minis and mainframes.

The Kaypro 16 has only one slot for adding expansion boards, instead of the three slots considered standard for PC compatibles. The IBM Portable Computer also suffers from this limitation, to which its poor sales have been attributed.

David Kay, vice president of marketing at Kaypro, claims his company's machine is as compatible as any of the other IBM PC clones on the market. Kaypro has been shipping 2000 systems a month and will boost production to 3000 a month.

Ericsson goes for Microsoft:

Information Systems, of Sweden, has signed up for "several million dollars worth" of software products from Microsoft for its recently announced PC. The agreement — the largest ever signed by Ericsson — will mean taking two-thirds of Microsoft's software range, from operating systems to applications tools.

Ericsson will supply the software under its own label and has the rights to manufacture copies of Microsoft's spreadsheet Multiplan.

Compared to this, other 3278/79 emulators aren't much to look at.



Look closely.

This isn't your everyday 3278/79 emulator. Ours gives you much more to work with. Namely, a host session, a PC DOS session and two notepads. All on the same screen. At the same time.

We call it the CXI 3278/79 PLUS PC connection.

Fortunately, it's easier to use than it is to say.

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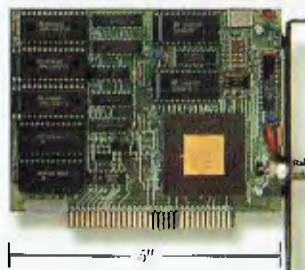
or modem connection. And both versions provide fast, easy file transfers between a PC and a CMS or TSO host. There's even a batch file generator that serves up multiple files with just a few keystrokes.

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But perhaps the biggest advantage of our emulator board is its small size. It's just five inches long. (Or short, depending how you

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Under 90% or under Arrest?

"A computer program can be written to perform any function that we can effectively describe."

— Alonzo Church



Imitation may be the sincerest form of flattery, but when it comes to the IBM PC, too close an imitation is treated as anything but flattering, as several unfortunate manufacturers of compatibles have already discovered. One such company, Eagle Computers, has never quite recovered since losing out in a court battle against IBM. (Has anybody ever won a court battle against IBM?)

Despite its overwhelming market successes, IBM has continued with its anti-clone campaign and is set to give further compatible makers a hard time over the next few months. IBM has apparently developed its own mainframe-based expert system to analyse the Rom chips used in compatible PCs, to determine just how they compare with its own Rom.

Although anyone can get access to the PC's operating system software, either through Microsoft or through IBM itself, it is the PC's Bios (or the underlying hardware implementation of PC-Dos) that is proprietary to IBM. In fact, in the spirit of "open architecture" computers, the Bios is the only item that IBM does regard as proprietary. Therefore, competing PCs may theoretically be mechanically, electrically and visually

identical to the IBM PC, so long as the Bios implementation used is significantly different.

The expert system which IBM has created presumably compares various manufacturers' Bios Rom chips against its own. The final output of this sophisticated program would then yield a weighting or percentage figure which, if it exceeds a certain "reasonable" value, would imply that the Bios is more or less a copy of IBM's. (Perhaps the system then automatically sounds alarm bells, generates a draft court summons and inserts tentative booking dates in the company lawyer's scheduling system!)

The \$64K question is, of course, just how high (or low) is this legendary percentage figure? How closely compatible can a manufacturer safely make a PC clone? . . . 80 per cent compatible? 90 per cent compatible? Perhaps even 99.9 per cent compatible? Furthermore, is this threshold figure likely to alter (in either direction) in the near future? It has certainly proved to be a rather dangerous business trying to find out.

One recent victim of this random clone test has been the UK company Advance, with its Advance 86 system

— known in Australia under the more familiar name of the Dick Smith Challenger.

Advance, like so many others, took the least-cost alternative, and totally re-wrote the Bios to IBM's approval, with the result that the final chips have now been delivered and installed in its latest batch of systems. Locally, Dick Smith Electronics has not had to suffer the wrath of IBM, which prefers to tackle such problems at the source.

This continuation of anti-clone activity by IBM justifies the foresight of the Taiwanese government/industry Erso committee, which in 1983 sought negotiations with IBM for the express purpose of designing an acceptable Bios chip. Those manufacturers now providing compatibles with the so-called Erso Bios installed can now thank their foresight and breathe easy, as other less fortunate companies suffer recurring nightmares of the random clone tests.

However, IBM is still primarily in business to sell mainframes — a fact that many within the PC industry often tend to overlook. In view of this, it is surprising to note that, after all the time and effort invested in the development of its clone-detecting expert system, IBM has not yet bundled the package with a mainframe and offered to sell it (at a very high profit margin of course) to all its would-be competitors.

For those that could not afford such a system, IBM could offer to run the prototypes through its random clone test as a kind of bureau service. This way the megacorporation could make money out of its competitors even before they started to compete, and it could get first glimpse at any new prototypes. Finally, if the competitors' systems begin to look too much better than the PC — dare I suggest — then that magic number (percentage, ratio, threshold or whatever) could be lowered by a few points and it would all start over again . . .

The pc software to use if you have IDMS/R.

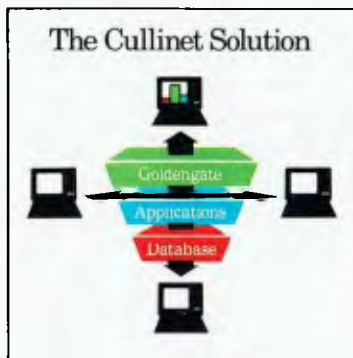


At last count, there were more than 50 integrated personal computer software packages.

But for companies with IDMS/R, we'd like to suggest that only one really makes sense.

GOLDENGATE, Cullinet's pc software package, integrates seven components: database, spreadsheet, graphics, document processing, 3270 terminal emulation, asynchronous communication, and information manager. While the software is exceptional on a standalone basis, it offers an added benefit to pc users in an IDMS/R environment – true micro-to-mainframe integration.

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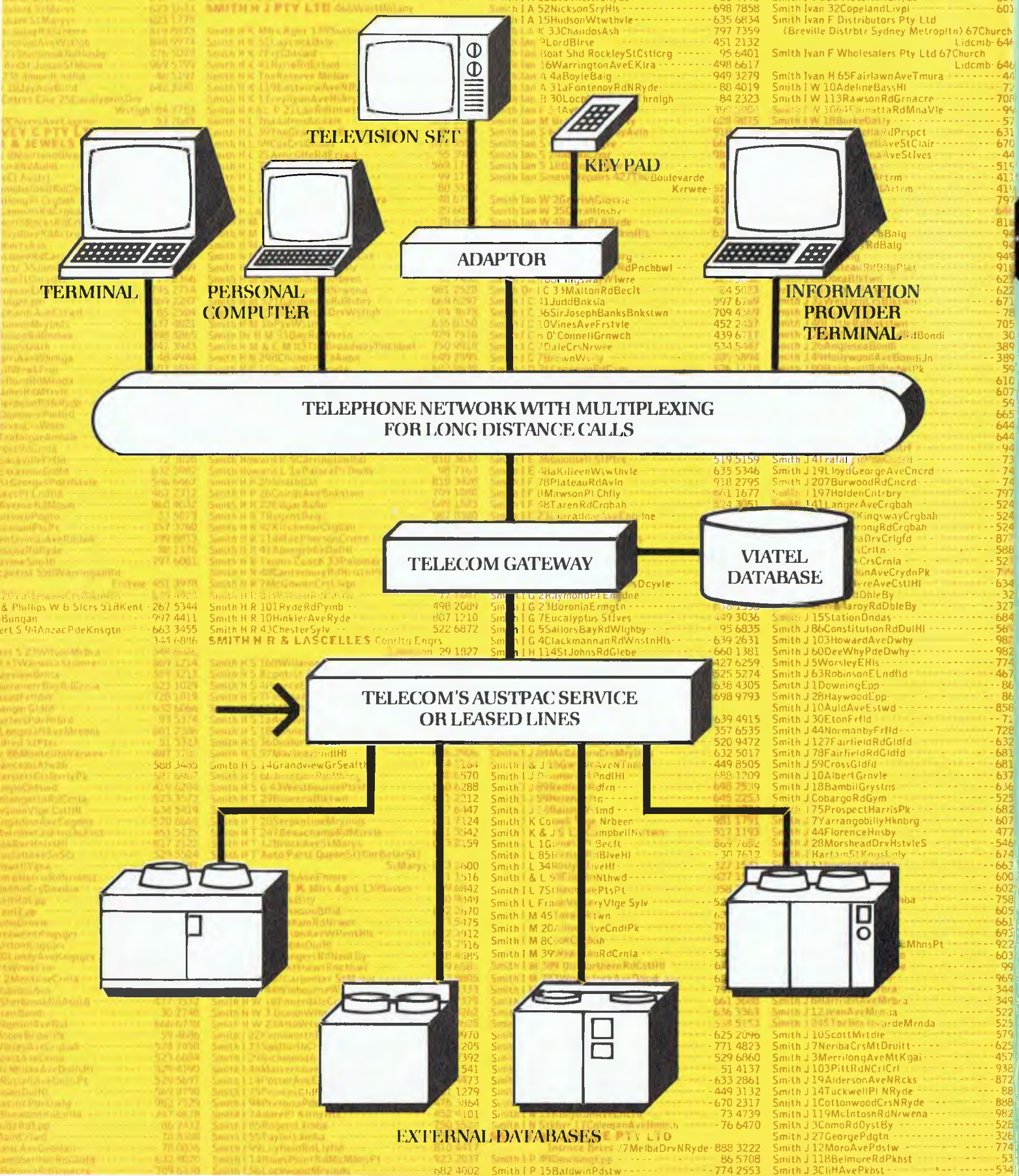
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6460D



GETTING STARTED VIDEOTEX

February 1985 will go down in history as the launch date of Viatel — Australia's public videotex service. Ian Robinson explains videotex and the potential benefits for PC users.

VIDEOTEX

Demystified

The vision of interactive communications via television has been around since the television set was invented. Despite being what many would claim as the ultimate electronic medium, television remains basically a one-way flow of information, and lacks the interactivity of even the crudest bulletin board system. This one-way flow has been a source of frustration to most television viewers over the years. Their only powers of control over it have been to change channels or, ultimately, to switch it on or off.

The telephone, on the other hand, involves a two-way information flow. But unfortunately, the telephone is limited to audio transmissions, as opposed to the audio-visual images produced by a television. Man has long fantasised about combining these two technologies into a kind of audio-visual telephone system (as seen in various science-fiction movies) but the widespread implementation of such a system is still well into the future.

Enter videotex

But in the short term, these technologies have been successfully combined, to create an interactive screen-based information service with the generic name of videotex. One of the earliest videotex systems installed

was Prestel, which was first fired up in the UK in 1979.

Although originally intended for use by home-based consumers who already owned a color television set and a telephone, Prestel did not really take off until inexpensive microcomputer-based videotex

Although originally intended for use by home-based consumers... Prestel did not really take off until inexpensive microcomputer-based videotex decoders were developed.

decoders were developed, whereupon the floodgates opened.

The advantage of PC-based videotex decoders is that screens can be printed out via normal screen-dump procedures and screen images can be rapidly accessed and saved to disk for later perusal without incurring

high telephone charges. A computer-based system is also a necessary prerequisite for companies providing videotex information. PC packages are available for the creation and editing of videotex information screens.

The original philosophy behind videotex services was that a simple decoder would be connected between the telephone socket and the family color television set. This would enable household members to look up weather forecasts, train timetables, grocery price lists and other consumer-oriented information.

But as things turned out, the entry cost for this new information source was far too high, and the original concept never took off. The powers that be within British Telecom discovered that people seeking that kind of information preferred to flick open a newspaper on the train. Critics denounced the waste of millions of dollars of taxpayer's money, claiming Prestel was a "solution in search of a problem".

Part of the problem was the high accessing costs of Prestel, for as well as the initial cost of a decoder, consumers were expected to pay quite a high ongoing licence fee plus the usual telephone charges. Compared with the price (and portability) of a newspaper, Prestel came out a poor second place.

TELECOM'S NATIONAL VIDEOTEX SERVICE

These charges will apply from February, 1985 with the commencement of Telecom's Service

	Charge to Access Viatel Data Base	Monthly Registration Fee	Additional Monthly Frame Rental Per Frame (in lots of 50)	Connection Time Charge Per minute or part thereof	Other charges
USERS	Local Call Fee	Business, \$12.50 Non-Bus., \$2.50		Mon-Fri 8am-6pm, \$0.08 ALL OTHER TIMES, \$0.05	Messages Per Message Lodged, \$0.05
SERVICE PROVIDERS (3 Digit Node)	Local Call Fee	\$225 Incl. 50 Frames Sub Service Providers \$35 Closed User Groups 1-5, \$25 Over 5, \$20 per CUG	50 to 1000, \$0.40 1000 to 5000, \$0.30 Over 5000, \$0.20	Editing Mon-Fri, \$0.12 8am-6pm ALL OTHER TIMES, \$0.09	Factoring Fee 5% of all revenue collected
MINOR SERVICE PROVIDERS (4 Digit Node)	Local Call Fee	Up to 20 Frames, \$60 50 Frames, \$80		Mon-Fri 8am-6pm, \$0.08 ALL OTHER TIMES, \$0.05	
EXTERNAL COMPUTERS	External Computer to Viatel. Standard Austpac charges or leased circuit-prices on application	\$300 Includes 50 Frames and 5 Gateway Channels Sub External Computers \$82	50 to 1000 \$0.40 100 to 5000, \$0.30 Over 5000, \$0.20	Editing Mon-Fri 8am-6pm, \$0.12 ALL OTHER TIMES, \$0.09	Factoring Fee As above

Figure 2: The Viatel pricing structure is designed to attract newcomers.

Eventually British Telecom responded to this poor reception by dramatically reducing the access costs of Prestel.

This move, combined with the

emergence of microcomputer-based videotex decoders and a growing interest in videotex among the business community, caused Prestel's prospects to gradually about turn, to the point where it is now a highly utilised and relatively profitable system.

The Australian experience

Following the reported success of Prestel, and similar videotex systems operating in other parts of the world, Telecom Australia began planning a local videotex system in 1981. These plans were shelved temporarily by the Federal government following lobbying from large companies planning for their own videotex systems.

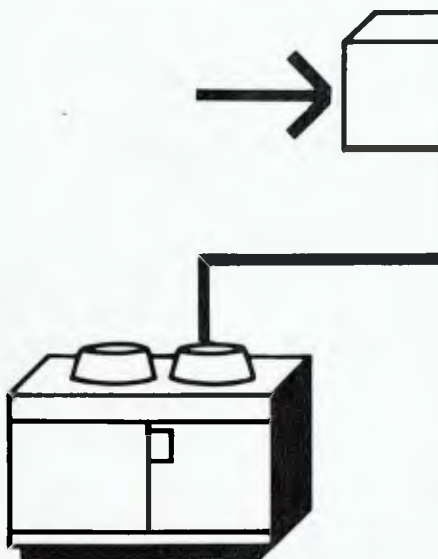
As no suitable system eventuated, Telecom announced a tender for a

nationwide videotex service last June. A \$3 million GEC Prestel system was selected, and this should be operating by February.

For reasons unknown to all but a few select individuals within Telecom, Australia's public videotex system has been named Viatel. Rather than pioneer a new technology, a rehashed version of the tried-and-true Prestel system was selected.

As well as the normal information services, Viatel allows users to pass through "gateways" to other private videotex systems (See Figure 1).

Perhaps the best news surrounding the launch of Viatel is that Telecom has learnt some important lessons from its UK counterpart's experiences and made its initial pricing structure very attractive — both for users and for information providers. (See Figure 2 for the Viatel prices). These low



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fees will probably only last for the first 12 months, or until a significant numbers of users is gained.

How it works

Videotex is based on a highly-structured system of menus and sub-menus comprising discrete screen images of information. Movement through the menus is usually achieved via the numeric keys (0-9) giving 10 choices a menu, although dummy screens can be set up to allow double-digit selection. There is also a method for going directly to a particular screen number and bypassing the preliminary menus, thereby saving telephone time.

Videotex decoding on a PC requires only a modem and the appropriate driving software. The modem must operate at a baud rate of 1200/75, that is, the user's commands are transmitted at 75 baud (bits/sec) while the returning video images arrive at 1200 baud. A total of eight colors can be used in Viatel screen images, along with medium-resolution graphics.

Viatel on the PC

As the IBM PC is limited to a palette of four colors in its medium resolution mode, certain modifications must be made for it to operate successfully as a videotex terminal. These modifications may be made in hardware or in software. The videotex support package recently released by IBM requires that the color-graphics adapter be modified before using the system, an item of small print not contained in the recent product announcement. On the other hand, the Netcomm In/Modem (See review p40) includes videotex decoding software which creates eight different shades out of the four basic colors.

Owners of other PC-compatibles with improved color capabilities (such as the Texas Instruments Professional) would not have to endure these limitations, provided

suitable driving software was available. In any case, the recently announced upgraded IBM color graphics adapter should soon be available in Australia, and the PC problem will be solved. This board can handle higher resolution graphics (640 x 400 pixels) and a greater range of colors.

Videotex alternatives

Various other countries have established public videotex services, with varying degrees of success. The Bildschirmtex (BTX) system of West Germany has been very successful due to extremely low access charges,

The videotex support package recently released by IBM requires that the color graphics adapter be modified before using the system.

and it is hoped to eventually grow to over one million subscribers.

France is undergoing a huge technological renaissance, as the government intends installing a videotex terminal free in every household instead of a telephone book. The French Teletel system is based on alphamosaic graphics, as is the West German system.

Another approach is the high-resolution alphaphotographic system, as incorporated in the Captain videotex service used in Japan. One other popular high-resolution standard put forward is the NAPLPS standard, as used in the \$C30 million videotex system used in Canada, which has so far had poor acceptance in that country.

Surprisingly enough, there is no massive public videotex system installed in the US. Instead there are a number of (incompatible) smaller systems catering for various closed user groups (CUGs) such as the Viewtron system. The lack of standards and fragmented markets are traditionally blamed for this.

The future of Viatel

Like Prestel, the principal market for the Viatel system will be the computer-owning community (both home and business) rather than the home color television owners. Those information providers catering to the home PC market will probably get the least from Viatel, for the same reasons that Prestel initially flopped — people find it easier to look in a newspaper.

But for business-oriented information, Viatel can make an ideal medium, because its interactivity opens up the doors to home banking, airline and accommodation bookings and electronic ordering and invoicing. Next year should see a boom in videotex-related peripherals and services for the PC industry.

Present PC users are an important target market for a whole new range of information services scheduled to be put up on Viatel. Following this, various private systems will also go for this lucrative market, taking advantage of the Viatel gateway systems. It could well be said that the long-term success of the Viatel system hinges on its acceptance by the Australian PC users community.

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Many PC users do not realise that DOS transforms the first five PC function keys into a handy set of editing commands. Seth Novogrodsky describes the famous five.

5 of the Best

Application programs such as WordStar and Lotus 1-2-3 take advantage of the PC keyboard and assign commands to the computer's ten function keys. Although DOS (disk operating system) is probably the most popular program for the PC, many people are unaware that DOS also assigns functions to these same keys.

Some DOS commands, such as DIR, are quick and easy to type, but others are slow and cumbersome, such as

```
COPY CHAPTER1 +  
CHAPTER2 B:BOOK /V
```

Such long command sequences can be even more tedious if you have to type them frequently. Worse still is typing a long command and then realising that you made a typographical error at the beginning of the line. Fortunately, the special

DOS editing keys (see Table 1) can alleviate such problems.

Command line editing

Normally, if you see a typographical error in a DOS command that you are entering, you press the <Backspace> key, <Ctrl> H, or the <CursorLeft> key on the numeric keypad until you have erased both the error and any correct characters along the way; you then correct the mistake and retype the rest of the command line. If your mistake was at the beginning of the command, you are forced to retype the entire line. There is, however, an easier way.

Let's say, for example, that you have a DOS disk in drive A: and you want to give the command CHKDSK B:FILE?.TXT /v /f but you inadvertently transpose

DOS FUNCTIONS

Key	Description
<F1>	Repeats previous command, character by character
<F2>	Repeats previous command up to a specified character
<F3>	Repeats last command in entirety
<F4>	Skips over characters in previous command up to a specified character
<F5>	Saves currently displayed line for editing and advances to next line

Table 1: A description of the DOS editing keys.

characters and type

CHKDSK B:FILE?.TXT /v /f

DOS, of course, won't find the CHKDSK.COM file and will display an error message. Rather than retype the whole command to correct the spelling of CHKDSK, you could press <F1>, type HK, press <F3>, and then press <Enter>.

Whenever you type a DOS command and press <Enter>, the command is stored in a special area of the PC's memory called the input buffer. Certain function keys allow you to manipulate characters stored in this buffer. Pressing <F1> copies one character at a time from the buffer (in this case the C) and displays the character(s) on the command line. (Pressing the <Cursor Right> key on the numeric keypad has the same effect.)

In the example, when you type the letter HK, you are actually typing over the next two characters in the input buffer. If you need to insert or delete characters in a line, you could use the <Ins> or keys. Pressing <F3> copies all the remaining characters in the buffer to the display. The correctly typed command CHKDSK B:FILE?.TXT /v /f can then be given by pressing <Enter>.

Pressing <F3> at the DOS prompt copies the last command issued to the screen, providing a quick way to issue the same

command two or more times in succession.

Character search keys

The <F2> and <F4> keys make it easy to modify large chunks of a command line. For example, let's say that you need to compare files on a

Pressing <F3> at the DOS prompt copies the last command issued to the screen, providing a quick way to issue the same command two or more times.

disk. If you want to compare FILE1 with FILE2, you could type

COMP FILE1 FILE2

But, you can conserve keystrokes if, after you compare FILE1 with FILE2, you type

<F2> 23 <Enter>.

<F2> copies and displays all characters in the buffer up to but not including a

specified character. Since you want to preserve the command line up to the number 2, you type 2 to tell DOS that the number 2 is the specified character. The screen displays 'COMP FILE1 FILE'. To complete the command, type 3, and press <Enter>.

<F4> skips over all the characters in the buffer up to but not including a specified character. <F4> is similar to <F2> in that the command should always be followed by a character. Using the <F4> key is generally more convenient than using the key to skip over characters in the buffer. For example, let's say that you enter the following command:

COPY B:PCWORLD.TXT MYFILE.TXT

If you then want to copy MYFILE.TXT to the disk in drive B: and rename it IBMFILE.TXT, you could type:

COPY MYFILE.TXT B:IBMFILE.TXT

But to save some keystrokes you could press <F2> and type B to restore everything up to the B. Then you'd press <F4> and type M to delete the text up to the M in MYFILE (that is, to delete B:PCWORLD.TXT). Then you would press <F3> to display the rest of the line, 'MYFILE.TXT'. Finally, you would press the <Space> bar, type B:IBMFILE.TXT,

and press <Enter> to complete and execute the revised command.

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DOS FUNCTIONS

Fixing typos

Have you ever noticed a typographical error at the beginning of the command line just as you were about to press <Enter>? If you made a number of typos, the best thing to do would be to press the <Esc> key. This key cancels your misspelled command line, restores the previous contents of the buffer, and advances you to the next line. But if you need only a few errors, you should press <F5>.

<F5> advances the cursor one line and preserves the command in the buffer even though it does not display the command on the screen. After pressing <F5> you can make changes near the beginning of the command by overtyping or using any of the other editing function keys or the <Ins> and keys. When you finish making the corrections, simply press <F3> to redisplay the

After pressing <F5> you can make changes near the beginning of the command by over typing or using any of the other editing function keys.

remainder of the command line, and press <Enter>.

You may wonder whether the DOS editing keys described here are worth all this trouble. If you use your

PC regularly, the answer is a resounding 'yes'.

With a little practice you can master the special DOS editing keys and conserve many keystrokes. Once you start working with these special DOS keys, you will be surprised at how much time you save.

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Seth Novogrodsky is a Contributing Editor for US PC World.

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Exposed!

Psychological software is the latest PC craze in the US — but is it really suitable for Australian conditions? Les Stein describes his analysis.

When I asked the Head of the Department of Clinical Psychology at the University of Western Australia and also a distinguished visiting professor of psychology from Stanford University to examine this software, they made a number of references to the Barnum Effect.

They commented on the "high degree of Barnum" and that the software exhibited "major Barnum significance". When I asked them to explain the nature of this Barnum Effect, they reminded me of the legendary P.T. Barnum who uttered these immortal words: "There's a sucker born every day".

The Negotiation Edge, The Sales Edge, The Management Edge and The Communication Edge are from Human Edge Software, of Palo Alto, California. These programs explicitly offer you the "edge" over your boss, employee, client or negotiation opponent and, as a result, "Computer-Powered Career Success". They teach you to crunch people rather than numbers.

Let's negotiate

I received the software the day before I was to negotiate on behalf of a client in a legal dispute. I have been teaching negotiation at law schools for 14 years, but I decided to put aside all that I knew and, in the name of computer journalism, let The Negotiation Edge call the shots.

The manual for The Negotiation Edge is divided into two parts. The

first is a clearly explained guide to using the program. There are no complicated commands in any of these programs and your hand is held while your brain is picked.

The second part of the manual is entitled Fundamentals of Negotiation and comprises tips and instructions on negotiating, with titles such as "Confrontation vs. Collaboration" and "Doing Your Homework". Each section is filled with such indivertible truths as: "Arguments should be logical, consistent and factually based." There is also a good deal of puerile commentary, as in: "Use the Jack Webb/Dagnet principle: 'Just the facts, Ma'am, just the facts'."

When you start the program, an attractive main menu is displayed which offers you three straightforward options. The starting point is "Assessing Yourself"; the program must know what you are like before it can tell you how to put your strengths and weaknesses to work in defeating your opponent. The second option is "Assessing Your Counterpart" and the third offers the chance to print (to printer or screen) a "Negotiation Strategy Report". Help is available on screen at any time and there is never any confusion as to what to do.

What I am really like

The self-assessment component presented me with 90 questions concerning aspects of my personality. I had the choice of either agreeing or disagreeing with the propositions

SOFTWARE

presented. (Figure 1 shows questions 11 to 15).

The questions are quite diverse. It was my impression that I expressed the sentiment through my answers that I am an easy-going negotiator who is conscientious and motivated to succeed.

The section for assessment of my counterpart was divided up into two parts. First, I was asked to agree or disagree with a list of 90 adjectives. Figure 2 shows questions 15 to 20.

This was not easy as I had only met him on two brief occasions. Nevertheless, I labelled him as a tough, almost ruthless negotiator who was most interested in making the impression that he was a minor deity. The second part offered a set of questions (17 in all) which sought information relating to constraints and factors concerning the actual negotiation. (See Figure 3 for five of these).

Now for the heart of the program — the Strategy Report. Each report follows the same pattern and is divided into several parts. The first is a general impression given in two paragraphs (see Figure 4 for an excerpt). Then comes a suggestion for an "Opening", then "Tactics and Strategies", "In-Process" hints, suggestions for a "Closing" and a brief "Negotiation Game Plan".

The suggestions for "Opening" the negotiation contained comments I considered less than useful. The first line was "Expect Mr X to make an initial offer which favors him." What else is new?



Self Assessment Questions: Agree or Disagree

11. I often put in an extra effort in order to make friends when I negotiate.
12. My luck at bargaining is poor.
13. I have high goals for my life.
14. I often buy things that I know friends will like.
15. I spend a lot of time having fun.

Figure 1: Sample self-assessment questions from The Negotiation Edge.

In answer to one of the questions, I had said I would be negotiating with Mr X again. I received the sound, but obvious, advice: "Because you will be dealing with Mr X again, you'll want to end this negotiation on a good note."

Two comments in the "Tactics" section instructed me to exaggerate my problems (because Mr X won't want to displease me) and to "develop a busy look". Just about every suggestion insisted that Mr X wants to be my friend and I should be his.

"Mr X wants to be liked by you and will be more inclined to agree to your proposals if he considers you a friend." "The more information you can gather about Mr X, the more likely you are to win. Get to know what kind of person he is. What are his interests or concerns?"

Armed with these and other suggestions in the report, I went along determined to follow the advice of The Negotiation Edge, even though I felt Mr X was as friendly and lovable as a parking inspector.

Here's a bit of the dialogue:

Me: "Hi Bill. Good to see you — you're looking well."

Bill: (grunt).

Me: "Tell me about yourself Bill, what are your interests?"

Bill: "What's it to you?"

Me: "Nothing special, just trying to get started on a friendly note."

Bill: "Let me know when you're finished so we can get down to business."

Maybe I need to communicate better

I fared miserably in the negotiation. Luckily the client can afford

a million here and there.

Since following the advice of The Negotiation Edge was not helpful I thought that maybe the problem lay with me. After all, if high-class, high-tech software that has received rave reviews tells me to be friendly, it must be right. Maybe, I thought, the problem was my inability to communicate properly with my good old buddy Mr X.

I enlisted the aid of our local computer salesman to try out The Sales Edge and The Management Edge.

The Communication Edge asks you to agree or disagree with questions which are similar to those in The Negotiation Edge, such as : "A white lie is frequently a good thing."

The questions that assess your counterpart are also similar but the Strategy Report is very different. It groups suggestions under two main headings: "What to Expect" and "Getting Along With Your Counterpart".

The Report told me to be flexible and that Mr X and I are likely to have different perceptions of how things are. The best advice was: "You may find Mr X lacking in social skills in your discussions. Moderate your outgoing ways."

Recently, as it happens, I saw Mr X at a legal function and approached him cautiously and hoped his ruthlessness would be soluble in an understated show of gentleness and concern. As I spoke, he started looking at me as if I had discovered that he was a mass murderer and he quickly withdrew from any further conversation.

What other tricks?

I enlisted the aid of our local computer salesman to try out The Sales Edge and The Management Edge. This salesman is similar to a bulldog in my old neighbourhood who would grab your shoe in its mouth and just hold on — for hours on end.

The Sales Edge works in the same way as The Negotiation Edge and The Communications Edge. You assess yourself and then your customer (mark?, skill?). The Management Edge is a bit more elaborate and offers you the chance to assess your subordinate, your superior, your managerial skills and your organisation.

The assessment of managerial skills, by the way, is conducted in only 11 questions and the section that evaluates your organisation requires 30. Both sections produce reports which cover one page and a paragraph on a second page. They appeared to me of no use at all in the understanding of the extremely complex issues that occupy professional management consultants for a lifetime. Party game material.

I left the salesman to work through The Sales Edge without me looking over his shoulder. When he indicated he was finished, I came into the room and asked him what he thought. He put his hand on my shoulder and said: "Friend, we have some serious talking to do." He then proceeded to explain to me why I had to upgrade my IBM with a new multifunction board. But, I asked him, what about the program? "Not bad", he said, "but let's get down to business."

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HUMAN EDGE

It was only the next day that I found out from others that the program had made him fierce — into a sort of Willie Loman Frankenstein. He believed he now knew how to put the puzzle of a sale together. He had gone from bulldog to rabid doberman.

How the programs work

The mastermind behind Human Edge Software is James H. Johnson, a clinical psychologist. I ran a search on his works through the DIALOG Psychinfo database and the computer gagged on the amount of information. He has written an enormous number of articles in psychology, including 23 articles in major journals on the interaction of computers and psychological testing.

Sometime in the 1970s, he, along with others, developed a program called Lab II which was written in Basic and ran on a Z80 machine. He formed a company called Psych Systems which was his first step down the road to megabucks.

His published works concentrate on the use of the MMPI test and its presentation and evaluation by a computer. The MMPI (Minnesota Multiphasic Personality Inventory) has been around for about 30 years. It presents a diverse range of questions and the scored results are rated on different scales, such as the degree of paranoia, hysteria, psychopathy, introversion and depression.

In a 1978 article, Johnson said the results of the testing were generated into reports which consisted of a series of sentence frameworks with blanks. For example, "The MMPI profile suggests

— distress (—). The first blank would be filled in with the level of severity (great, mild, etc.) and the final blank would give a technical descriptor of the distress.

The two professors of psychology who viewed the programs said the Edge questions had in them a whiff of the MMPI and also a well-known test

called "The Adjective Checklist". I telephoned Jim Chapman, the executive vice president of Human Edge Software in California and asked him directly how it all works.

He said the exact method was proprietary, but he could say that although Johnson cut his teeth on the MMPI, he has derived his own tests for these programs. Any similarity to other is incidental and not intended.

All tests used in the Edge

I found out from others that the program had made him fierce — into a sort of Willie Loman Frankenstein.

programs look for four distinct measures. First is the degree of introversion versus extroversion. Second, there is the extent of "worrisomeness" in the person. Third, the level of tough mindedness vs. gullibility is measured. Last, there is a measure of conscientiousness.

Combinations of these scales are used, as well, to determine specific characteristics. He gave me the example of questions designed to find out if a person is dogmatic; it would be clear in a negotiation strategy that a dogmatic person should be

Assessment of My Counterpart: Agree or Disagree

- 15. self-assured
- 16. self-reliant
- 17. uncaring
- 18. unconventional
- 19. outgoing
- 20. manipulative

Figure 2: Sample counterpart assessment questions from The Negotiation Edge.

instructed to make some concessions.

When it is time to produce a report, an "Output Disk" is placed in Drive B which is chock full of paragraphs with different shades of meaning. Paragraphs are chosen for inclusion in the report when there is a cross tabulation between your personality and that of the counterpart for a particular point. An examination of the paragraphs for The Communication Edge indicates there are perhaps 20 different points that can be included in a report.

A question of validity

Any critic of psychological predictability must admit that there is a pony in there somewhere. (When faced with a barn of horse manure, there has to be a pony in there somewhere.)

The profession of psychology is sensitive to issues of validity, and in the area of psychological testing, onerous guidelines have been laid down to determine if a test can be considered reliable. The American Psychological Association in its Standards for Educational and Psychological Tests and Manuals has suggested the use of a number of evaluation criteria.

For example, in the tests used by the Edge programs, it would be important to consider criterion-related validity, which compares test scores with one or more external variables that are considered to provide a direct measure of the behaviour in question. As well, "construct" validity is relevant as it examines what qualities the tests measure by determining the degree

Specific questions as to the negotiation: Agree or Disagree

- I lack enough time to complete the negotiation successfully.
- I have never negotiated with Mr X before.
- The power to control the proceedings is equally divided between us.
- We will not be meeting as buyer and seller.
- Mr X feels a strong need to finalise an agreement.

Figure 3: Specific questions regarding negotiation factors.

to which certain concepts or constructs account for performance on a test.

This is only the tip of the validity iceberg. A multiplicity of factors is analysed over a long period, such as the effect on the results of daily changes in a person being tested, the homogeneity of the questions and a question by question investigation of the degree of item difficulty and cross validation with different samples.

Perhaps it is best put by Edge creator, Johnson, in a 1983 article: "[Validation is] the most haunting problem and serious shortcoming of automated testing."

It was explained to me on my call to Human Edge Software that the Edge Tests were first validated in the spring of 1982 by a series of clever methods. Two hundred people were asked to assess themselves and then a spouse, a co-worker and a stranger

(who had only met the person for an hour) were asked to do an assessment. Those questions where there was most agreement were retained and the rest were discarded. The remaining questions were then retested on 300 new people.

These tests show that Human Edge Software is serious about question selection, but it's still no proof of the reliability of the tests used. Johnson has done his homework, but has he done the right homework? For the software to be given the seal of approval, Edge is obliged to show the evidence they have that the tests are effective.

There are many issues left unanswered as to the reliability of the tests used. To take just one issue: what, for instance, is the effect of the same person doing the self-assessment phase more than once.

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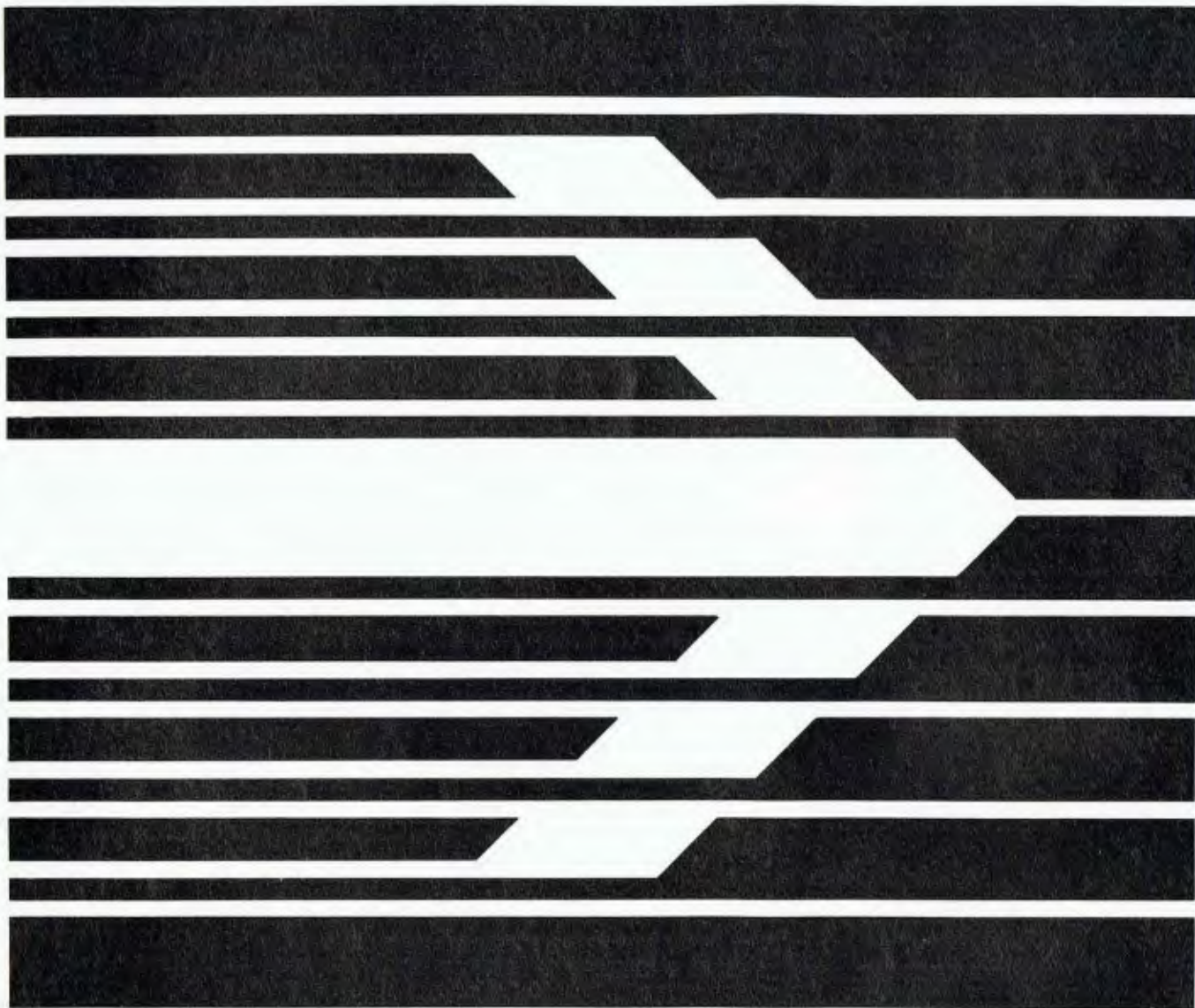
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HUMAN EDGE

The standard text on psychological testing (Anastasi) points out: "Obviously the norms, validity and reliability found for a single administration of such a test could be completely inapplicable to retest scores."

Proof of validity is the key to a serious consideration of the Edge software. I would be particularly interested in an analysis of the type of person who would buy and use this software.

Even the original designers of the MMPI, that parent of many psychological personality tests, were very concerned with the motivation of the person being tested: "He may approach the task of self-description in a given way because he is a certain kind of person... the status that he may currently possess, the situation in which he finds himself, or the purposes for which he believes these examinations are being carried out."

What I dislike about it

The term "edge" really sums up these programs. They explicitly offer a chance to manipulate your way into success in negotiating, sales, communication or management.

But do you want the edge? Aren't there are many situations where your relationship with a client or opponent is one of equality and trust; the "trusted customer"? Honest discussion and a sentiment of good feeling and mutual benefit may not sell 4000 widgets on a particular day, but it may mean better (and more psychologically rewarding) business in the long run.

The software requires you to enter into false and assumed postures which may be deleterious. At the moment of negotiating, communicating or selling there is no time to fully consider these reports and try to interpose complex behaviours over your personality.

The Communications Edge told me to "moderate my outgoing ways". When I tried to do this deliberately, I felt awkward and had to occlude

other traits which may have been more advantageous. I also had difficulty remembering how I was supposed to act. It has been my clear observation that spontaneity is often what fosters creative solutions and success.

Negotiating, selling, communicating and managing are interactive processes where there is a dynamic interchange; perceptions are modified as you go along. The Edge programs would have us believe that these processes can be reduced to a static picture.

Psychologists would say that this causes an "anchoring effect". This is when an initial or fixed impression overly determines what will thereafter occur. We know Mr X is ruthless, and anything he does we will filter through this impression even if it's not the case. "He just bumped into my briefcase — what a mean bastard!"

The problem with the reports generated by the Edge programs is that they have, what is called, a high base-rate probability. This is well illustrated in a series of studies where a group of psychological tests were given to university students and they were all given the same report of the test results. The report indicated things that were generally true for everyone. A high proportion of students reported that the reports were extremely accurate.

Barnum revisited

The Negotiation Edge told me to: "Detect Mr X's weak arguments and use them against him." The Communication Edge told me: "Remember that no two persons see things alike." On close consideration of the different reports produced for my dismal negotiation and communication with Mr X, there was really little of significance that I did not know or was not aware of consciously, because of our previous dealings.

I found the reports only reinforced my negative views of Mr X (the "anchoring effect") and were an

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To negotiate effectively with Mr. X, you will have to give his proposals full attention. This may be tough for you because you like to be the person who leads the meeting. Remind yourself that he also wants to be a decision-maker and to feel as though his ideas are important. The more you can ease up on controlling the meeting, the smoother business will become. You may find that you have to listen to Mr. X's stories more than you like. Remember, he wants you to have high regard for his skills as a negotiator. Be as friendly as possible and you can easily make Mr. X like you personally. This is necessary in order to gain his cooperation with your plans.

Figure 4: An excerpt from the Strategy Report generated by The Negotiation Edge.

impediment to fostering a new approach to our dealings. I have also dealt with X on a few minor matters as well as those involving large sums of money. The programs don't take into account that the course of negotiations vary considerably depending on what's at stake.

Is it good for anything?

The psychologists who examined the software agreed that the programs would have clear and beneficial use as a training device. The Edge programs would foster a greater self-examination by a negotiator, manager or salesman than might otherwise take place.

It would also allow a sharpening of perceptions about others. It is said to be the case that when you are oriented to what you think about yourself and others, the quality of your interactions with clients must improve.

One suggestion for using the programs is for two people to assess

themselves and each other and to compare notes. Feedback on one's perceptions would heighten the accuracy of observation.

More to probe

Edge Software has released a new program called Mind Prober. The idea is to see into the mind of another person by answering 66 questions about your perception of their attitudes to sex, relationships, work and other matters. Reviewers have assessed Ronald Reagan and Walter Mondale using Mind Prober and found the results accurate. A report that reinforces your own perceptions is bound to make you think you are pretty clever. Truly, this is a flat-earth view of the mind.

The Mind Prober program is selling for less than \$50, and will be a good competitor for Eliza, the Basic program that will be your shrink in 100 lines of code.

Does this signal George Orwell's 1984? No; it's more like Cabbage

Patch Kid software — it's cute but it doesn't really do much.

I have been told that major companies around the world are using the Edge series. The kind of mentality that would seriously use the software other than as a training device may just bring on Orwell's 1984.

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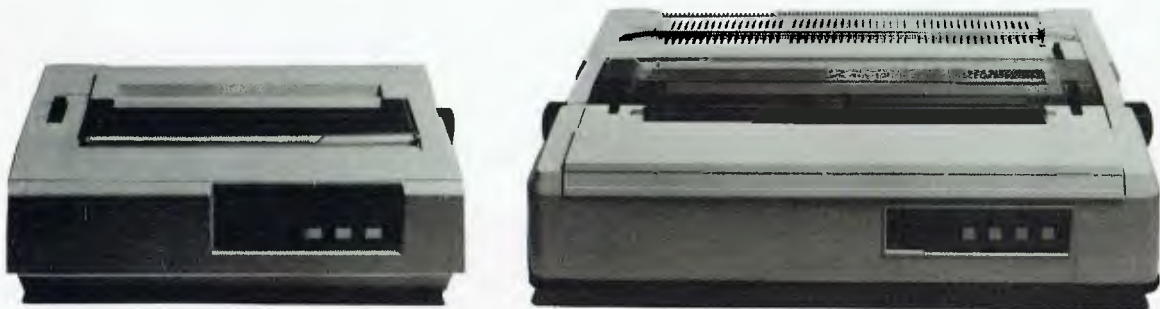
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Les Stein is an Associate Professor of Law at the University of Western Australia and is also a member of the Psychologist's Board of Western Australia.

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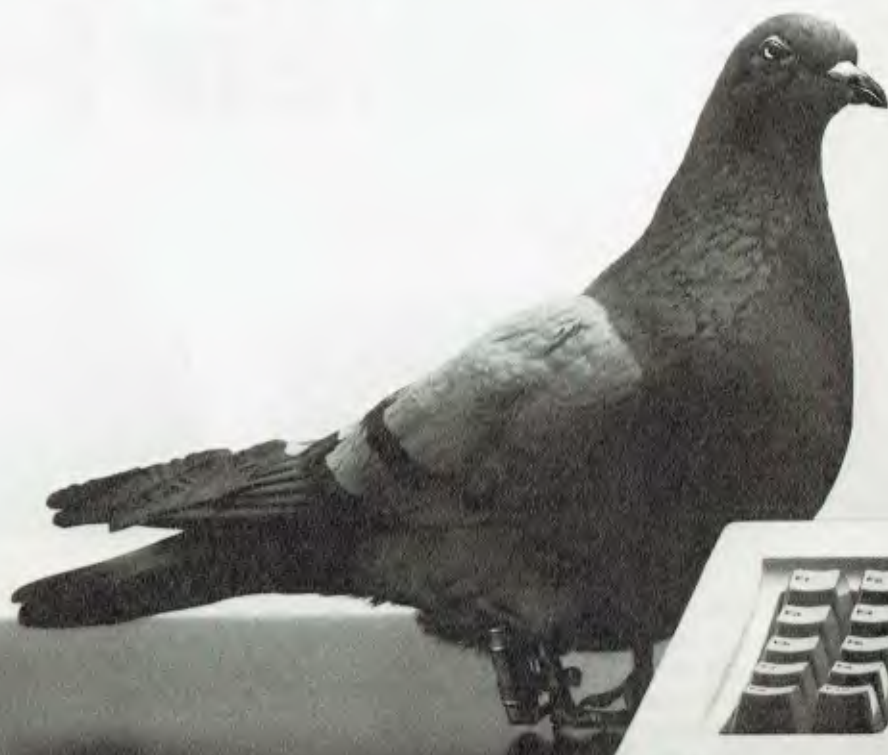
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Compatibles

UPDATE

A few additions here, a few deletions there, and plenty of price changes everywhere! The Australian PC World Compatibles Update charts indicate the current state of play.



The entry of new PC compatibles into the local market has all but stopped. Indeed, a few previous contenders have disappeared because of financial difficulties. Nevertheless, business is still fast and furious, as reflected in the widespread pricing changes. Some vendors are also beginning to cram more features into their standard models in order to give them the edge over the competition.

The Australian PC World
Compatibles Update charts are
intended as a comparison aid, and all
prices quoted are the recommended

retail prices including sales tax as at December 1. But because of continual price erosion and competition these should be taken as a rough guide only. As different manufacturers provide varying options with the standard model, the prices given are for a typical workable system. This is defined as a system including two disk drives, 256K-bytes of RAM, a parallel port and a monochrome display.

Recent additions to the PC Compatibles Update charts have included some of the more interesting models, and these are

COMPATIBLES UPDATE

described in more detail in the following paragraphs:

NEC APC III

The original NEC APC (Advanced Personal Computer), which has achieved excellent sales over the years in a competitive market, was often criticised for its backbreaking weight, outdated 8in disk drives and its relative incompatibility with the industry-standard IBM PC. With the recent release of the NEC APC III (nobody knows what happened to the APC II) all these problems have been addressed, although the new machine is still not quite as compatible as most market leaders.

NEC spokespeople defended this move by boldly claiming that PC-compatibility was simply a "state of mind".

One of the minor incompatibilities lies with the APC III's 640K-byte (quad-density) disk drives, which are incompatible with those used in both the IBM PC (360K-bytes) and the PC AT (1200K-bytes). The APC III uses better graphics than the PC, namely 640 by 400 pixels resolution with a full eight colors in all modes. Another distinction is the superior 8MHz 8086 processor. Despite these differences, the APC III was launched with a sizable collection of software (see photograph) and the system will no doubt be well supported by NEC.

The APC III may be expanded to 640K-bytes of RAM from the 128K-bytes provided in the basic model. Twelve function keys are provided on the keyboard, and the monitor incorporates a tilt and swivel stand. Parallel and serial interfaces are provided as standard equipment and a version of the MS-DOS 2.11 operating system is bundled with the system. A range of hardware options are available for the APC III, including a games joystick and GPIB laboratory interface.

NEC Information Systems Australia
99 Nicholson St,
St Leonards, NSW 2065.
Tel: (02) 438 3544.

Zenith Z-160 Portable

Zenith Data Systems has had phenomenal success in the US with its powerful Z-150 desktop PC-compatibles, and it was only a matter of time before the company released a portable version. The Z-160 is a highly compatible portable with a difference — the two disk drives pop out of the top of the system, rather than being built in beside the screen.

The Z-160's 9in amber screen is similar to that inside the IBM portable PC, and is capable of handling color graphic images as a "grey scale" pattern. It is quite possible that the two screens are one and the same, as Zenith Data Systems manufacture many of the

The original NEC APC... was often criticised for its backbreaking weight, outdated 8in disk drives and its relative incompatibility with the industry standard IBM PC.

sub-assemblies used in the IBM PC range. The Z-160 incorporates a parallel and two serial ports, as well as RGB and composite display drivers. The Z-160 keyboard includes ten programmable function keys, a large L-shaped return key and LED status indicators.

The Z-160 includes 128K-bytes of RAM as standard, and may be increased to 320K-bytes on the motherboard and to 640K-bytes with the use of expansion boards. A total of four full-sized PC-compatible expansion slots are available for hardware options such as printers or modems.

Other Z-160 features include the

ability to boot up from either disk drive, smooth scrolling and four display type styles. Weighing almost 19kg for a dual-drive model, the Z-160 Portable would more aptly be named a "transportable", but every manufacturer, including IBM, gets away with this common misnomer.

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Logitech M-1601

Victorian company Porchester Computers is offering the latest Taiwanese PC-compatible, the Logitech M-1601. This system is a close compatible, and looks identical to an IBM PC — only the label is different.

The Logitech includes 256K-bytes of RAM as standard, expandable to 640K-bytes. Standard features include a color graphics card and two slimline disk drives as well as a serial and parallel port.

Porchester is also offering internal and external hard disks for expanding the Logitech (or other compatibles), as well as a range of PC-compatible printers and display monitors. Streaming tape units capable of storing up to 50M-bytes are also available, along with the appropriate driving software.

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Compatibles Update tables ►

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COMPATIBLES UPDATE

PC COMPATIBLES — DESKTOPS

	Retail price	CPU	8087 opt.	PC slots	RAM Capacity		Disk Capacity		Display		Keyboard		IBM chars.
					M'board	extra	floppy	fixed	colors	resolution	keys	fn. keys	
IBM	\$4789	8088	Yes	5	256K	640K	360K	10M	16	640 x 200	83	10	Yes
Canon AS-100	\$6180	8088	No	3	256K	512K	640K	10M	8	640 x 400	100	12	No
Columbia MBC	\$5290	8088	Yes	5	256K	512K	320K	10M	16	640 x 200	83	10	Yes
Corona	\$4670	8088	Yes	4	512K	1M	360K	10M	16	640 x 200	—	10	Yes
Dick Smith Challenger	\$3648	8086	Yes	4	256K	640K	360K	10M	16	640 x 200	84	10	Yes
Eagle	\$4730	8088	Yes	4	256K	640K	360K	10M	16	640 x 250	84	10	Yes
EME 1600	\$2800	8088	Yes	5	256K	572K	360K	10M	16	640 x 200	83	10	Yes
Emtek PC-16	\$2879	8088	Yes	5	256K	768K	360K	10M	16	640 x 200	84	10	Yes
Intelligent PC-301	\$2500	8088	Yes	7	256K	572K	340K	30M	14	620 x 220	83	10	Yes
ITT Xtra	\$3850	8088	Yes	5	128K	640K	360K	10M	16	640 x 200	83	10	Yes
Lingo PC-8088	\$2800	8088	Yes	5	256K	512K	320K	10M	16	640 x 200	83	10	Yes
Logitech M-1601	\$3549	8088	Yes	3	256K	512K	320K	25M	8	640 x 200	83	10	Yes
Olivetti M24	\$5030	8086	Yes	7	256K	640K	360K	10M	16	640 x 400	83	10	Yes
Olympia People	\$5995	8086	Yes	4	256K	512K	655K	10M	16	640 x 475	91	12	Yes
Nec APC III	\$3995	8086	Yes	4	320K	640K	640K	10M	8	640 x 400	102	12	No
Pantek	\$3521	8088	Yes	5	256K	640K	360K	10M	16	640 x 200	83	10	Yes

	Retail price	CPU	8087 opt.	PC slots	Ram Capacity		Disk Capacity		Display		Keyboard		
					M'board	extra	floppy	fixed	colors	resolution	keys	fn. keys	
IBM	\$4789	8088	Yes	5	256K	640K	360K	10M	16	640 x 200	83	10	Yes
Panasonic JB-3000	\$4800	8088	No	—	256K	—	720K	8M	8	640 x 640	—	8	No
Panda	\$3100	8088	Yes	12	128K	512K	720K	10M	16	720 x 325	83	10	Yes
PC-Pro	\$2700	8088	Yes	8	256K	512K	320K	20M	16	640 x 200	83	10	Yes
President 16	\$4100	8088	Yes	8	256	512K	360K	20M	16	640 x 700	83	10	Yes
Sanyo MBC 550	\$3291	8088	Yes	4	256K	256K	320K	10M	8	640 x 400	—	5	Yes
Sharp MZ 5600	\$4695	8086	Yes	4	256K	512K	720K	10M	8	640 x 400	109	10	No
Sigma Data Elite	\$3860	8088	Yes	5	256K	640	320K	10M	8	640 x 200	90	16	Yes
Sperry PC	\$5070	8088-2	Yes	7	128K	640K	640K	10M	16	640 x 400	84	10	Yes
Stearns PC	\$4695	8086	Yes	1	256K	896K	720K	20M	4	720 x 364	15	10	Yes
Tava PC	\$4500	8088	Yes	5	256	640K	360K	10M	16	640 x 250	83	10	Yes
Televideo TS-1605	\$4785	8088	Yes	1	256K	640K	360K	10M	16	640 x 200	83	10	Yes
Texas Instruments	\$3955	8088	Yes	5	128K	768K	320K	10M	8	720 x 350	97	12	Yes
Toshiba T-300	\$5185	8088	Yes	0	256K	512K	640K	10M	16	640 x 500	103	32	Yes
Wang Professional	\$5100	8086	Yes	8	128K	768K	360K	10M	16	800 x 300	101	32	Yes
Zenith Z-150	\$5434	8088	Yes	8	320K	640K	360K	10M	16	640 x 200	83	10	Yes

PC COMPATIBLES — PORTABLES

	Retail price	CPU	8087 opt.	PC slots	RAM Capacity		Disk Capacity		Display		Keyboard		IBM chars.
					M'board	extra	floppy	fixed	colors	resolution	keys	fn. keys	
IBM Portable	\$4233	8088	Yes	7	256K	640K	360K	No	16	640 x 200	83	10	Yes
Columbia VP	\$4500	8088	Yes	1	128K	256K	320K	No	—	640 x 200	83	10	Yes
Compaq	\$4860	8088	Yes	3	256K	640K	360K	10M	16	640 x 200	83	10	Yes
Corona	\$4670	8088	Yes	4	256K	512K	360K	10M	16	640 x 400	83	10	Yes
Eagle Spirit	\$4770	8088	Yes	4	640K	640K	360K	10M	16	720 x 352	84	10	Yes
Hyperion	\$5500	8088	Yes	0	256K	640K	328K	20M	—	640 x 250		10	Yes
Seequa Chameleon	\$4995	8086 Z80A	Yes	0	256K	704K	160K	10M	16	640 x 200		10	Yes
Sharp PC-2200	\$4140	8088	No	0	256K	256K	360K	No	8	640 x 80		8	Yes
Televideo TPC-11	\$4440	8088	Yes	1	512K	640K	360K	10M	16	640 x 200	83	10	Yes
Texas Instruments	\$4925	8088	Yes	5	128K	768K	360K	10M	8	720 350	97	12	first 96
Zenith Z-160	\$5395	8088	Yes	4	320K	640K	360K	10M	8	640 x 200	83	10	Yes

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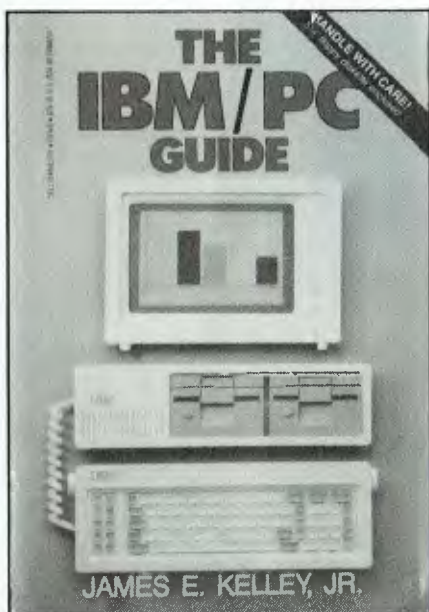
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It seems that bookshop shelves continue to fill with introductory PC books. PC beginner Chess Wade examines four such books.

PRELIMINARY

The majority of future single unit PC buyers are likely to be complete computer novices, as those users with some sort of PC experience have by now chosen and purchased a system. Computer book publishers have not been slow to realise this, and various "Getting Started with your PC"-type publications now adorn the shelves of bookshops, newsagents and PC dealers. A sample of these are reviewed in the following paragraphs.



More than a book

The IBM PC Guide
By James E. Kelley Jr
Published by Banbury Books

BOOKS are not simply books anymore. The IBM PC Guide is an excellent case in point. Supplied with it is a floppy disk with

a number of Basic programs the author uses as part of the concept of the Guide.

The 310-page publication includes programs that demonstrate commands and features as they are introduced to the reader. These programs (and relative data) are stored on the floppy disk provided, which makes for much easier lessons than having to type the programs in. This is particularly applicable if the reader has little or no knowledge of Basic or, quite possibly, even a typewriter keyboard.

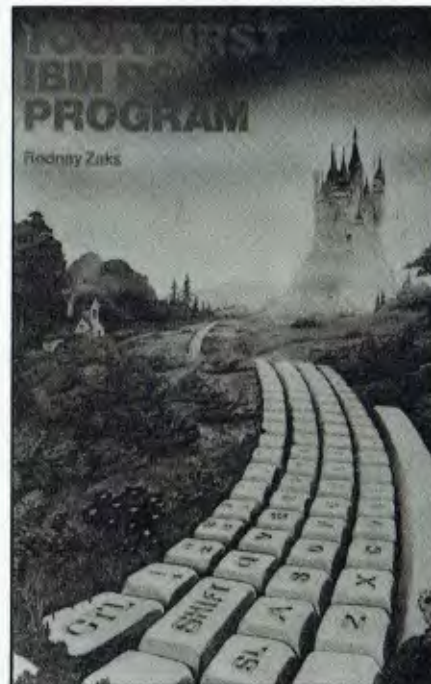
The programs include demonstrations of random access techniques, sorting, making the most of the IBM and Epson printers, character-based graphics, and sound effects.

The book is well written, and the author clearly has an understanding of the necessary aspects of using the PC and its Basic and for home users of the PC, this book seems well suited.

The book covers most areas first-time users will want to look at, excepting graphics and advanced sound capabilities. Each aspect is explored in considerable detail, and references for further information on a particular subject are often provided.

Because of the detail, length, and scope of this book, it is unlikely that it would appeal to the first-time business user who has just bought a PC and software, and needs an introduction to the machine.

But the book's final chapter could be helpful for the home programmer. In it, the author presents a copy of a database program (written in Basic) that a beginner would find quite useful.



The mischievous bug

Your first IBM PC program
By Dr Rodney Zaks
Published by Sybex

WHEN you pick up a book written by Dr Rodney Zaks, you are about to read a publication by one of the finest authors in his field.

Dr Zaks has written how-to books for a range of computers as well as tutorials on languages (USCD Pascal, 6502 and Z80 assembler), and even a book on what microprocessors are, what is available, and how to put them together to create a computer system.

Dr Zaks' *Your First IBM PC Program* is an excellent book that maintains reader interest throughout, is comprehensive in its lessons, and I'm sure would inspire any fledgling

READING

programmer to begin hacking.

As a bonus to the unsuspecting reader, an artist by the name of Daniel Le Noury did the illustrations (including the cover and fly-sheets). Through Le Noury's illustrations, characters were created to assist with the learning process, and to also make it enjoyable.

Meet the heroes: Dino the Programmer, a rather lovable and fat dinosaur; the Basic interpreter, a Flash Gordon lookalike; the computer itself, which has arms and legs and a screen for a face; the Variables, numeric and string; the Program Snake, made of Basic instructions; and the indispensable flowchart. Sounds intriguing, doesn't it?

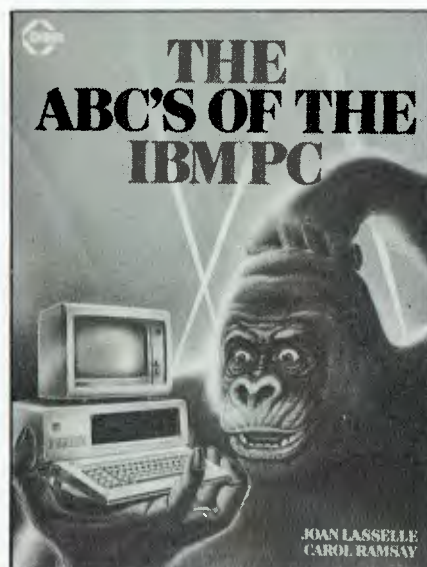
There is also another character in the plot. The mischievous Bug, who, in the book (and real life) is always out to get poor old Dino the Programmer.

If you are a beginner needing encouragement, a light and easy to comprehend style, ample illustrations and examples, and perhaps even motivation and you have a sense of humor, this is the book for you.

A slim summary

The ABC's of the IBM PC
By John Lasselle & Carol Ramsay
Published by Sybex

WITH only 137 pages (plus index), nine chapters, and a suitable number of illustrations and examples, this book qualifies as an efficient introduction to the world of PCs and programming.



Topics covered include hardware details, getting started, early commands, maintaining floppy disks, possible applications for the PC, and optional "bells and whistles". Each chapter has a review of the points covered at the end of it, examples are presented in blue, and when a new key is introduced, the PC's keyboard is shown in blue, with the new key in white, making it easy to find.

The book's chapters alone would make a suitable introduction to computing on a PC, but the book's strongest point is, without doubt, the four appendices.

These are: putting it all together; using a single-drive PC; glossary; and resources. Each one contains a wealth of useful information such as how to put the PC together; copying DOS; US manuals, books, and magazines; and US public information services.

Technophile's delight

IBM's Personal Computer
By Chris DeVoney & Richard Summe
Published by Que Corporation

THIS book was written for the technophiles, and is a complete and independent report on the IBM PC and how it works.

It covers details such as how the central processor works and what its limitations are, what the 8087 co-processor is and why it is faster, the system board's features, peripherals, available system software, available programming languages; application software, general information on IBM; and available resources for the PC user.

As well as details of the various products mentioned, the hardware is reviewed along with several applications software packages (Easywriter, Visicalc, Peachtree accounting suite).

But the book was originally published in 1981, and so much of its information is out of date. Of course, the technical details have not changed, so the book is, in the main, still current.

The most interesting section of this book is the communications chapter (Chapter 8). This chapter covers examples; benefits; public information network details; different types of communications (sync, async, bisynch); protocols; interfaces; techniques and equipment.

An updated version of this publication would be tremendously valuable to keen PC users, with an expanded software review section and a look at compatibles.

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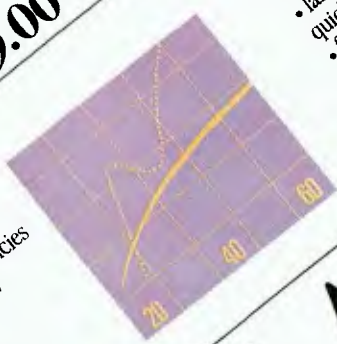


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Australian
company
NetComm has
released an
internal
modem for
the PC. Ian
Robinson
investigates.

The NetComm PC In/Modem was launched in Australia recently without much fanfare. Yet it looks set to become a landmark PC peripheral, with a number of claims to fame.

The three most important are that it is the first Australian-made Telecom approved internal modem for the IBM PC, it is fully compatible with the de facto standard Hayes Smartmodem command set and it comes supplied with videotex interface hardware and driving software.

As well as these, the In/Modem includes auto-dialling, auto-answer and auto-disconnect facilities, will accommodate tone or pulse dialling, accepts either the Bell (US) or CCITT V21/V23 (Australian) telecommunications protocols and comes complete with a telephone handset. This impressive array of

features and the reasonably low \$A895 price should ensure fairly brisk sales, once the PC In/Modem becomes available in quantity.

Background

NetComm (Aust) Pty Ltd has been making microcomputer communications products for several years, including some successful peripherals for the Apple II. The In/Modem is the company's first attempt at an internal modem for the IBM PC. One of the In/Modem's longest development processes was the obtaining of Telecom approval (C84/39/1148).

Until now, the only Telecom-approved modems available in Australia have been external types, which consist of a box connected to the serial port of the PC and to the telephone socket. Internal modems



Chris Howells of NetComm demonstrates the In/Modem board and its Videotex capability.

which are abundant overseas, are plug-in boards designed for the PC expansion slots, such that a telephone cable links the PC and the telephone socket.

Strictly speaking, Telecom regulations do not allow an internal modem such as those available in the US. There must always be some type of "isolator" unit between the PC and the telephone line. Therefore, the In/Modem includes a small PC-grey box (known as the Line Connection

Unit) linked into the cable. This box, which also provides the link to the telephone handset, contains not much more than some transformers and the modem speaker. One advantage of locating these rather bulky components within the external box is that the modem board itself is thus small enough to fit into a "short slot" in either the PC XT or the PC Portable.

In/Modem design

In/Modem uses the World "smart" modem chip combined with a Motorola 68705P3 on-board microprocessor. This CPU contains 2K-bytes of Rom space for custom programming, giving the modem its "intelligent" characteristics. There are also 128 bytes of Ram available on the chip for storing temporary parameters, such as baud rate and control characters.

The only hardware controls are two jumper connectors on the board itself, which configure the modem as either serial port COM1 or COM2. All other controls (baud rates, start bits, stop bits, parity and local

telephone protocol) are achieved through software. The design and implementation of the In/Modem is simple and modular.

A 16-wire flat cable links the In/Modem board with the Line Connector Unit, which is connected to the handset and the telephone socket by standard telephone cable. The optional handset is one of those simple one-piece devices made in Hong Kong which abound in discount stores and local markets.

Nevertheless it works, and is also fully Telecom-approved. This handset is automatically disconnected whenever the In/Modem is in use.

Communication skills

Most of the latest integrated packages incorporating communication capability, such as Symphony, Framework, Electric Desk and Open Access, use the Hayes Smartmodem command set as the default option. Such a widespread endorsement of this standard has led to most of Hayes' competitors developing Smartmodem-compatible units.

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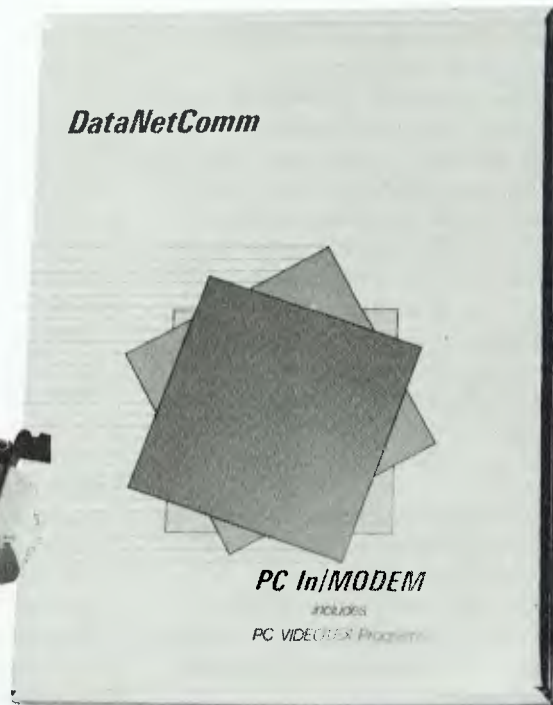
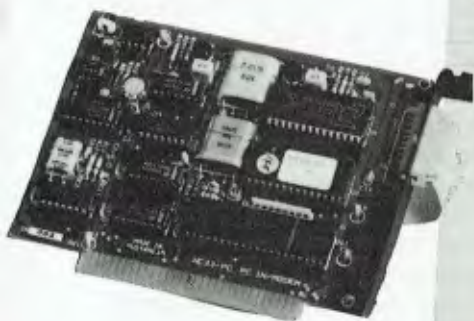
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The In/Modem board will fit into a short slot.



The In/Modem manual is exceptionally well-presented.

The In/Modem is the first Australian-made modem to take advantage of this de facto communications standard.

The Smartmodem commands cover auto-dialling (both tone and pulse), redialling, switchboard timing, online/offline switching, password entering, system reset and hanging up. There is also a facility to "reverse" the modem from originate to answer mode, for use when communicating with antiquated originate-only modems. The Smartmodem commands consist of a single letter, optionally followed by a parameter such as a telephone number or pause length.

The protocol used by the Smartmodem and compatible modems makes use of a number of special registers. These contain variable communications parameters, such as the number of rings to wait before answering a call, the wait time for dial tone (in seconds), the decimal values for the carriage return, line feed, backspace and escape characters, the carrier detect response time, the time to wait for a carrier signal after dialling, and the

delay time to wait after the carrier is lost. All these are initiated with sensible default values, but the user may change them at any time, either manually or by using automated software commands.

The default escape character is the plus sign, but this may be altered to any convenient Ascii character. The escape code is used by sending a time delay followed by three distinct escape characters ('+++') and a further time delay. Obviously, an escape character is chosen which is not likely to be transmitted in normal correspondence three times in succession.

Using videotex

The most attractive bonus included with the In/Modem package is arguably the videotex interface capability. A disk is supplied with a comprehensive, easy-to-use videotex program, and the hardware has been designed to handle the unusual 1200/75 baud rate required for videotex. This means that although the videotex images are transmitted to the user at a rapid 1200 baud, the

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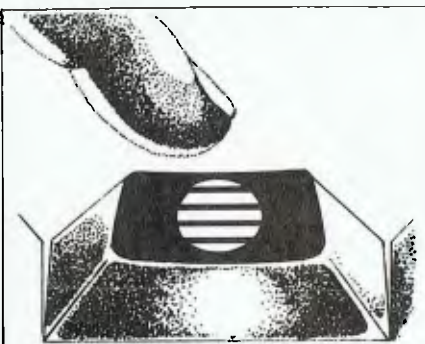
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IN/MODEM

user's commands are sent to the host system at 75 baud.

This is no great problem, as most videotex commands consist of single-digit selections. In any case, the In/Modem maintains a small type-ahead buffer for speedy typists.

The NetComm videotex program is initiated from Dos by typing "VT". After that, it is fairly well self-explanatory. Four videotex service numbers may be pre-programmed as the first four menu options of the program. Further options enable the user to re-dial a number and exit the system.

Videotex images may be saved to disk at any time and examined later. The program also includes a "slideshow" utility which scrolls through the current images stored on disk for a quick review of captured information.

As the PC color/graphics adapter can only display a total of four colors in the medium-resolution mode generated by videotex, NetComm has had to use some sneaky programming to distinguish the eight colors transmitted. The result is that a combination of shades of the four basic PC colors (black, white, cyan and magenta) is used to simulate the original eight colors transmitted by the videotex host.

It is particularly timely for manufacturers to start including this capability with their PC communications products, as Australia's first public videotex system (Viatel) is scheduled to begin early next month, and present PC users are a prime target videotex market.

Documentation

Compared with documentation supplied with other locally-made PC peripherals, the NetComm PC In/Modem manual is no less than superb. But diehard PC fans may be slightly annoyed when they realise the text describing this PC-based product has been generated by an Apple Lisa computer.

The manual is divided into two

sections — one describing the modem hardware and software, and the other describing the videotex interface operation. Each section is liberally decorated with diagrams, tables and photographs.

The photographs used to describe the installation of the In/Modem are particularly good, and almost up to IBM's excellent standard. Although there was the odd typographical error, the all-important technical information was, from what I could determine, faultless.

The manual is well-written, and can quite easily be read from cover to cover in less than an hour. The modem itself could quite possibly be installed without the use of the manual, but it is nevertheless reassuring to know that it is there, just in case hand-holding is required. An excellent step-by-step troubleshooting guide is also included, making fault-finding that much easier if something does go wrong.

All in all, when utility, quality, price and market entry timing are considered, the NetComm PC In/Modem could well prove to be the Lotus 1-2-3 of PC hardware, and the icing on the cake is the fact that it was designed and manufactured here in Australia. **PC**

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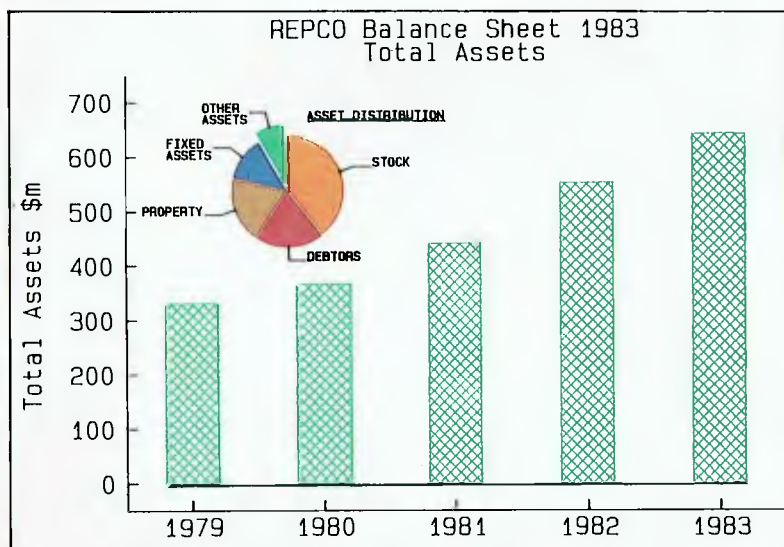
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(Charts shown here were produced with Houston and Hewlett-Packard plotters, on a Televideo 803.)

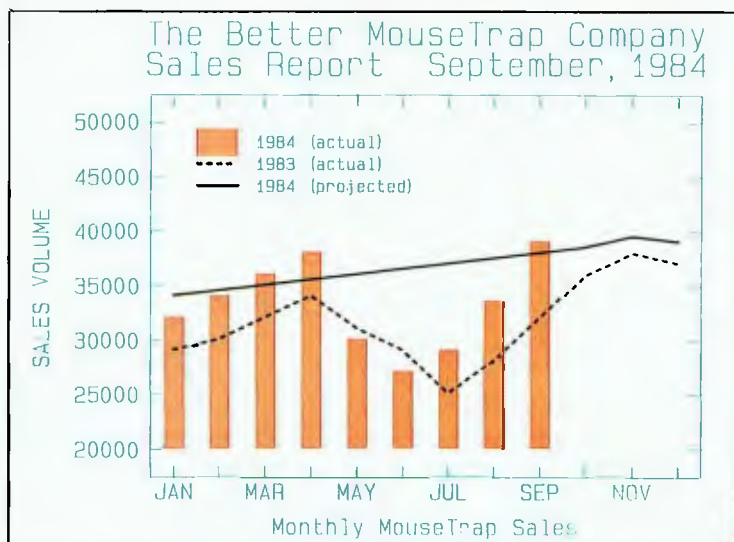
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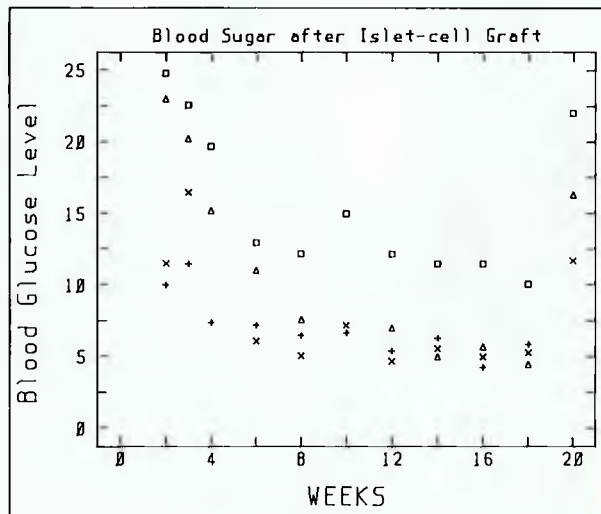
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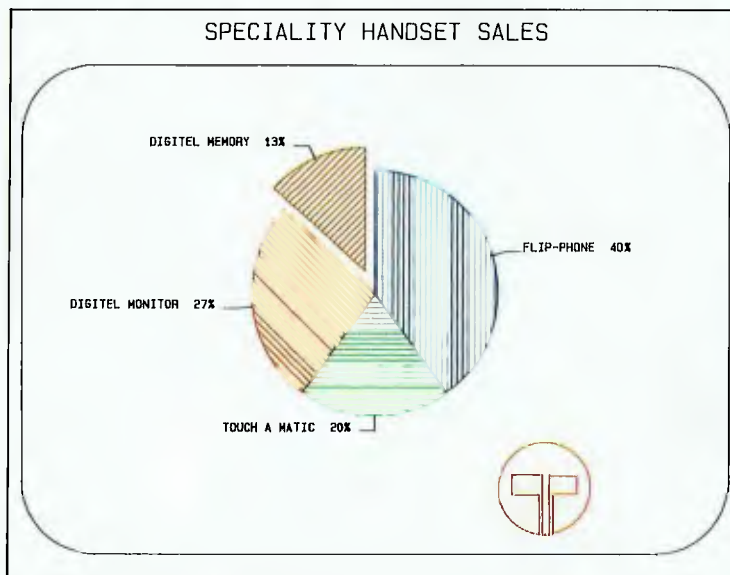
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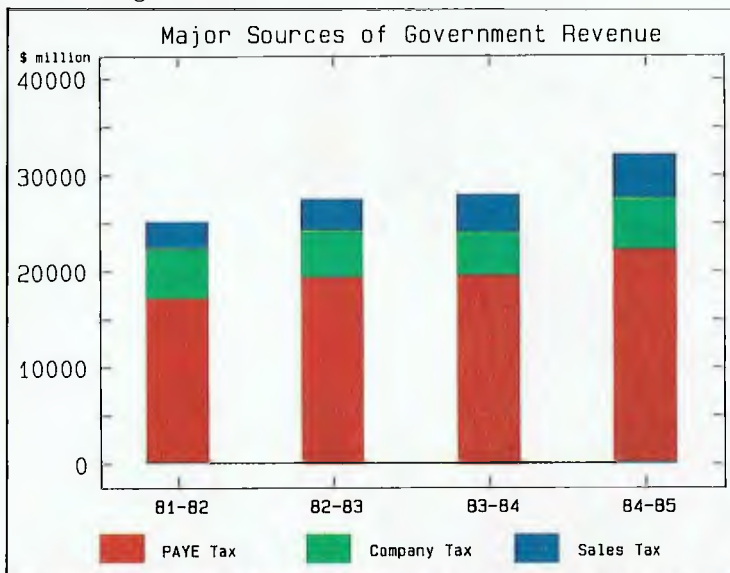
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HANDS ON 1-2-3 UTILITIES

LoadCalc and DocuCalc are two new utilities intended to make the use of Lotus 1-2-3 even easier. Professional 1-2-3 user John Green puts the two programs through their paces.

The DYNAMIC DUO



One of the problems with spreadsheets is that trying to figure out how you performed a set of calculations set up last week can be a very tedious task. Trying to figure out someone else's spreadsheet can be even more frustrating.

Most spreadsheet systems are not very good at documenting the definitions of formulas, ranges, formats and so on which make up the applications. Their strength lies in the ease with which the problem may be set up, not with communicating the final product.

This means that it can be easy to overlook small errors which have crept in, difficult to find major discrepancies in the results and a real

Sherlock Holmes exercise to figure out how Myrtle from Corporate Planning constructed the set of calculations you have just been asked to update.

Herein lies the major difference in structure between the mainframe financial modelling languages (a number of which are now available on PCs) and spreadsheets. Systems like EPS-FCS and IFPS are relatively self-documenting, as the language used just about ensures an English-like description of the calculations.

The spreadsheets not only use fairly cryptic cell addresses, but tend to provide little assistance in listing the cell formulas and obtaining general information about the calculations.

	A	B	C	D	E	F
	25	9	9	9	9	9
1		TAX FORECAST				
2		-----				
3		(F0) 1985 (F0)+B3+1 (F0)+C3+1 (F0)+D3+1 (F0)+E3+1				
4						
5	PRETAX PROFIT	-100	30	45	50	50
6	TAXABLE PROFIT	@IF (A6<0 ,A6+B5,B	@IF (B6<0 ,B6+C5,C	@IF (C6<0 ,C6+D5,D	@IF (D6<0 ,D6+E5,E	@IF (E6<0 ,E6+F5,F
		5)	5)	5)	5)	5)
7	TAX	.46*@MAX (B6,0)	.46*@MAX (C6,0)	.46*@MAX (D6,0)	.46*@MAX (E6,0)	.46*@MAX (F6,0)
8	PROFIT AFTER TAX	+B5-B7	+C5-C7	+D5-D7	+E5-E7	+F5-F7
9	TAX PAID	+A7	+B7	+C7	+D7	+E7

Bottom Right F9
 Iterated 1
 Calculation Manual
 Order Natural
 Format Currency 2 decimals
 Column width 9
 Graphs

TAX FORECAST

X Range B3..F3

A Range B5..F5

B Range B6..F6

C Range B7..F7

Type Line

Title 1 \b1

Title 2 FIVE YEARS FROM 1985

X axis YEARS

Y axis \$ MILLIONS

Legend A \a5

Legend B \a6

Legend C \a7

Unprotected

Print Setup \015

Left Margin 0, Right Margin 240, Lines/Page 66, Top Margin 2, Base Margin 2

Label Prefix

1-2-3 UTILITIES



Figure 2: The utilities are attractively packaged, although documentation is mediocre.

An alternative solution

A product which helps overcome the relative weakness in spreadsheets is DocuCalc from Micro Decision Systems. Its manual makes it obvious that it was originally developed for VisiCalc, as this is the only system mentioned. However, it can also be used with Lotus 1-2-3, Symphony and SuperCalc. It is in fact so easy to use that the manual is superfluous, and lack of references to other spreadsheet systems is not a problem. (DocuCalc does not support Multiplan, presumably because this spreadsheet system has reasonable documentation facilities built in.)

An example of the output of

DocuCalc using a Lotus 1-2-3 spreadsheet is shown in Figure 1.

DocuCalc does not document any more information than could be obtained from the original system by one means or another, but it makes the task of producing a comprehensive listing of spreadsheet definitions extremely straightforward. The presentation is far superior to that obtainable from the original.

It is therefore much easier to check a spreadsheet for errors or establish how calculations have been performed than by ploughing through the pages of badly formatted listings produced by Lotus 1-2-3, for example.

As a user of Lotus 1-2-3 and

Symphony, I have long been annoyed at the single-definition-per-line printout of the equations. For a spreadsheet of any size, this usually means producing a listing which is centimetres thick, consisting mainly of white space. Not only is it a waste of paper, but the format is most inconvenient for checking. You spend most of your time leafing backwards and forwards, and go cross-eyed in the process.

DocuCalc produces a listing, either on screen, to a file or to the printer, which is arranged as a grid corresponding to the underlying spreadsheet and using the current column widths. It gives a choice as to whether equations wider than their column are printed out in place, or at the end of the grid display with an appropriate cell reference. When equations are in place, they are wrapped over multiple lines if they exceed the column width. I much prefer to see the references in place for ease of checking.

Options

A map of the spreadsheet may also be produced in a grid form showing a single character code (such as "L for Label) for each cell location, indicating the type of entry.

In addition, a global listing of worksheet settings may be produced, including such things as the location of the bottom right hand corner, the iteration setting, the global format, protection settings, and so on.

The above also includes range names and their cell definitions, and print settings and graph settings for Lotus 1-2-3. These are not given for Symphony, which is disappointing. Even though this sort of information is much more accessible in Symphony than Lotus 1-2-3, it can not be conveniently obtained by a single command.

DocuCalc is executed by typing "DOCUCALC" at the DOS system prompt. It is copy-protected and if copied to hard disk will check the A drive for the original system disk (two copies are provided). From then on it provides simple prompts and menu

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1-2-3 UTILITIES

choices, which make it extremely easy to use.

Introducing LoadCalc

Many spreadsheet builders need to access data which already exists in a computerised form on their own PC, on a mainframe in their organisation or on a public database. In general, this process has been done by hand.

Even though communication programs such as Crosstalk make it easy to transfer data to a PC, and even if it is already on the PC, it is usually not in quite the right format to go directly into a spreadsheet system.

A second product from Micro Decision Systems, LoadCalc, takes care of this problem. As long as the information is in an ASCII (or character) file in a tabular format, LoadCalc can translate it into a VisiCalc, Lotus 1-2-3 or Symphony worksheet or into a data format suitable for Multiplan, SuperCalc and other programs.

The data exchange formats supported are DIF, SYLK and SDI. It can also generate a file with quotes around strings and commas between fields, which is compatible with a number of systems.

Menu operation

LoadCalc is operated by a menu system which is similar to that in VisiCalc. The menu is accessed by pressing the "/" key and consists of single letter commands such as "L" for Loading a source file.

Many files can be translated simply by loading (using /Lfilename), saving (using /Sfilename.WKS for example to create a Lotus 1-2-3 worksheet) and specifying W (Whole file to be translated). LoadCalc will make assumptions about the width of spreadsheet columns and the relative location of numbers and labels.

If the default procedures are not suitable, commands allow wide scope in selecting and formatting data during the translation process. There is practically no online help to assist in understanding the commands, but

the small reference manual is reasonably structured and easy to follow.

Once a set of translation instructions has been specified, they can be saved to a file for future use. If the process is a regular procedure on a standard file, LoadCalc can be run from a batch file rather than manually. It would be relatively simple then, for example, to transfer information from the corporate accounting system for monthly reporting of actuals against budget.

Summary

DocuCalc is a very useful additional tool for the user of spreadsheets and fills a gap which is not adequately addressed by most spreadsheet systems. The manual is not impressive, but you should not need to use it.

LoadCalc fills a need which is becoming increasingly apparent as spreadsheet users become more sophisticated in their requirements.

Both products are useful additions to the spreadsheet user's repertoire.

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LoadCalc \$199.

DocuCalc \$199.

System requirements:

192, two disk drives, Lotus 1-2-3

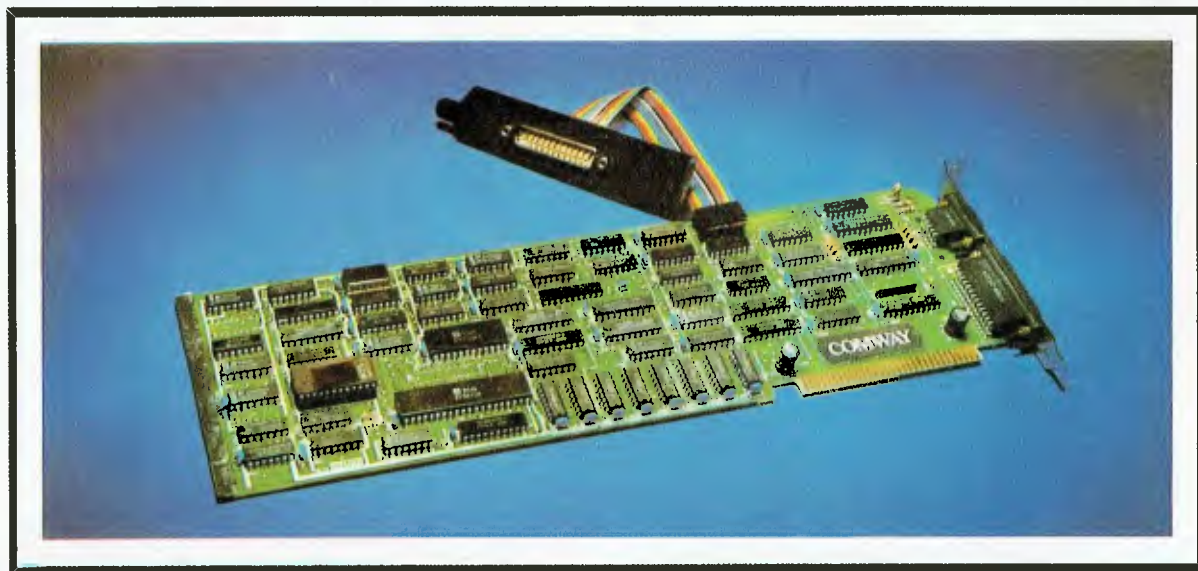
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John Green is a consultant with Execuplan Consulting and is secretary of the Sydney Lotus User Group.

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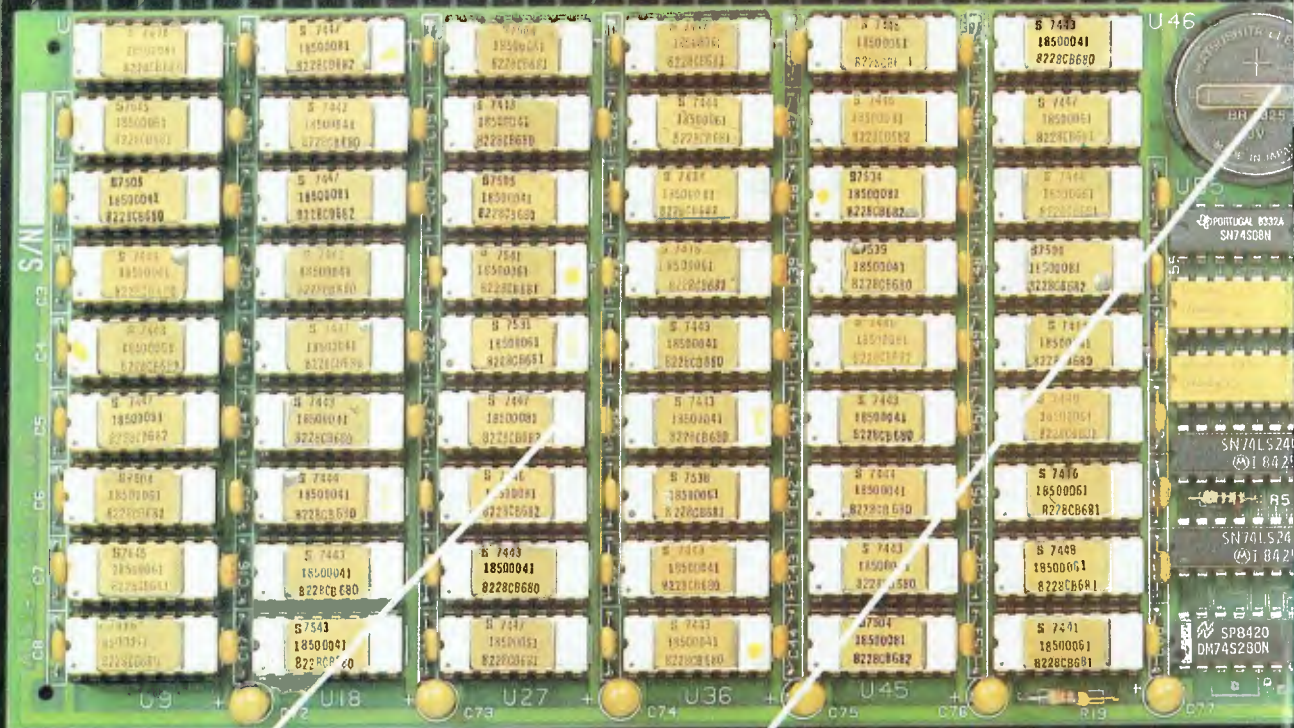
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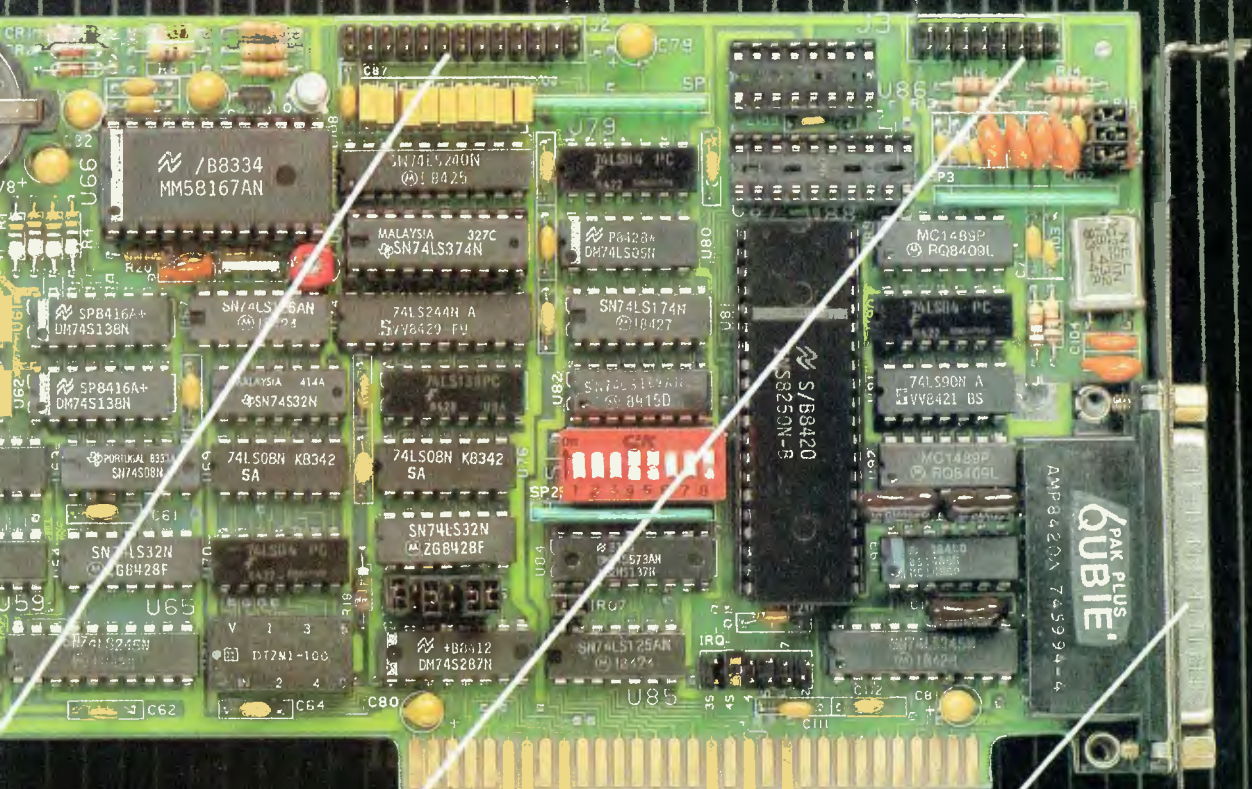
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IBM has granted Intel's powerful 80286 microprocessor the ultimate seal of approval, by incorporating it in the new PC AT supermicro. Robert Luhn and Rick Cook explain what makes this particular chip so mouth-watering.

INTEL'S

Multitask Master

Most microcomputers are essentially one-person, one-program machines. A micro in a local area network is a little friendlier, sharing data and occasionally processing with the other microcomputers. But it remains a single-user device, its grasp and limitations defined by the power of the microprocessor.

In short, a micro can go only as far as its microprocessor will carry it — a distance that will radically change now that Intel's new 80286 microprocessor has opened the door to cheap multitasking systems.

More than 20 companies, from office automation giant Datapoint to semiconductor manufacturer Intel, have already released or will soon release machines using the 80286. The most recent entrant is IBM with its PC AT.

In the chips

Microprocessors got their start in 1969 when Ted Hoff, an engineer at Intel, was given the job of designing the components for a desktop calculator. Hoff devised the concept of placing the calculator's arithmetic and logic circuits on the same slice of silicon. The microprocessor was born.

It was the start of big things for Intel and small things in the world of computing.

On its rise, Intel spawned a number of microprocessors, the most prominent being those in the burgeoning 8086 family. This clan of 16-bit microprocessors boasts the popular 8088; the faster 8086; the 80186 and 80188, which pack the processing power of the 8086 plus the support circuitry of 15 other chips but are really dead-end lines of development; and now the 80286, a processor that essentially combines two 8086s with the features necessary for multitasking and multi-user systems.

Demand for personal computers with greater speed and sophistication is growing and, given the increasing popularity of LANs and memory-hungry integrated software packages, it's not surprising that the 80286 is showing up in the computer market. Multi-tasking, multi-user 80286-based systems that can network as many as 16 micros — such as the Intel 286/310, the Visual 2000, and the Rair SuperMicro — are already elbowing minicomputers aside in the competition for customers. Of course, these computers aren't cheap: prices start at \$US8000. But like most things

micro, 80286 machines will become cheaper as 80286 production increases and software that takes advantage of the chip's power makes such machines truly useful.

Inside the 80286

The 80286 is designed to run at 10MHz, more than one and a half times faster than most 8088 and 8086 processors, and holds 120,000 transistors — six times as many as the 8088. But raw numbers are not always a good measure of a microprocessor's performance or an indication of its abilities.

For example, the 80286 runs IBM PC software five times faster than the 8088. Intel engineers also consider the chip to be six to eight times more powerful. This is largely based on the 80286's ability to use 16M-bytes of memory (versus the 1M-byte addressing ability of its relatives) and to manage that memory in special ways. This memory-handling ability is the key that enables the 80286 to unlock the door to multitasking.

Multitasking is achieved by manipulating multiple sets of data and program instructions at once. To understand the essentials of multitasking, consider how a typical

sequential microprocessor works.

Under the direction of a program, a microprocessor fetches an instruction stored in memory, finds the required data in memory, and performs the operations indicated by the instruction. The microprocessor then receives the next instruction and repeats the cycle.

Each operation is performed in sequence; the microprocessor can't fetch another instruction until the first one has been executed. A great deal of time would be saved if it could. A microprocessor also has slack time that could be used productively. For example, an instruction may direct the microprocessor to send a message to the operating system and wait for a response. The entire process may take a few milliseconds — enough time for the microprocessor to accomplish several other tasks.

The 8088 takes advantage of these inactive moments with its bus instruction unit (BIU), an independent section of the microprocessor that includes an instruction queue. When the traffic clears on the bus, the BIU finds the first two bytes of the next instruction and stores them in the queue. As soon as the microprocessor finishes the last instruction, it goes to the queue for the next one.

This approach to managing data not only speeds up the 8088's operation — since the microprocessor doesn't have to search memory for its next instruction — but in effect lets it do two things at once.

The 80286 carries this process several steps further. It not only uses a BIU, but has an instruction queue that holds three ready-to-execute instructions. When the microprocessor is close to completing one instruction, it signals the BIU to take the next instruction out of the instruction queue. At the same time, the "address unit" section of the chip handles several of the complex housekeeping tasks required by the 80286's memory management scheme.

In short, the 80286 does four

things at once and speeds up processing enormously by eliminating much of the lag time common in most microprocessors.

Managing memory

What distinguishes the 80286 is its memory management unit (MMU), a discrete section of the chip that handles the actual addressing of memory much in the manner of a mini or mainframe computer. Most microcomputers store data and program instructions at specific, or "real", locations in memory.

Large computers, on the other hand, use a "virtual" addressing scheme, in which data and instructions are stored

This electronic sleight-of-hand is made possible by the MMU working in conjunction with an accommodating operating system.

relative to a reference point, which may change from program to program or from user to user. The difference between real and virtual addressing is the difference between specifying the third card from the top of a deck of cards and specifying the third card after the first ace.

In either case, the designated card can be found, but in the second, the physical location of the card changes every time the deck is shuffled. The 80286's MMU converts the virtual addresses into real addresses. The user and the software never know what the real addresses are and don't need to.

But how are programs on a multi-tasking 80286 (or users in a LAN that is served by an 80286-based machine) prevented from writing over each

other's files? The 80286 avoids this potentially disastrous problem by allowing an operating system or other software to cordon off sections of memory into segments as large as 64K-bytes. Passage from one segment to another is tightly controlled by assigning each segment one of four security levels. If a program requesting access to a segment doesn't have the proper security clearance (determined by the MMU), access is denied. Since segment boundaries also serve as reference points for virtual addressing, programs and data do not accidentally write over existing material in memory.

Memory can be even more strictly protected: as well as a security level, a segment can be assigned to a particular task. A task could be a user on a network or one of several programs run by the same user.

This approach prevents programs or users with the same security level from entering a segment unless permission is explicitly given. Security is further assured because the registers that convert virtual addresses to real ones are inaccessible to the inspired programmer and the insidious hacker.

This combination of segmentation, virtual addressing and security is at the heart of the 80286's ability to protect memory. While protection is a complicated process, it not only makes the user's life easier but makes multi-tasking and multi-user computers possible.

Virtual memory

The 80286 can support more than 1000M-bytes of virtual memory, which, like memory protection, is a software function. It lets a computer fake more memory than it has by allowing programs to ignore the distinctions between RAM and disk storage.

All available memory and disk storage can be written to and read from at will. This electronic sleight-of-hand is made possible by the MMU working in conjunction with an

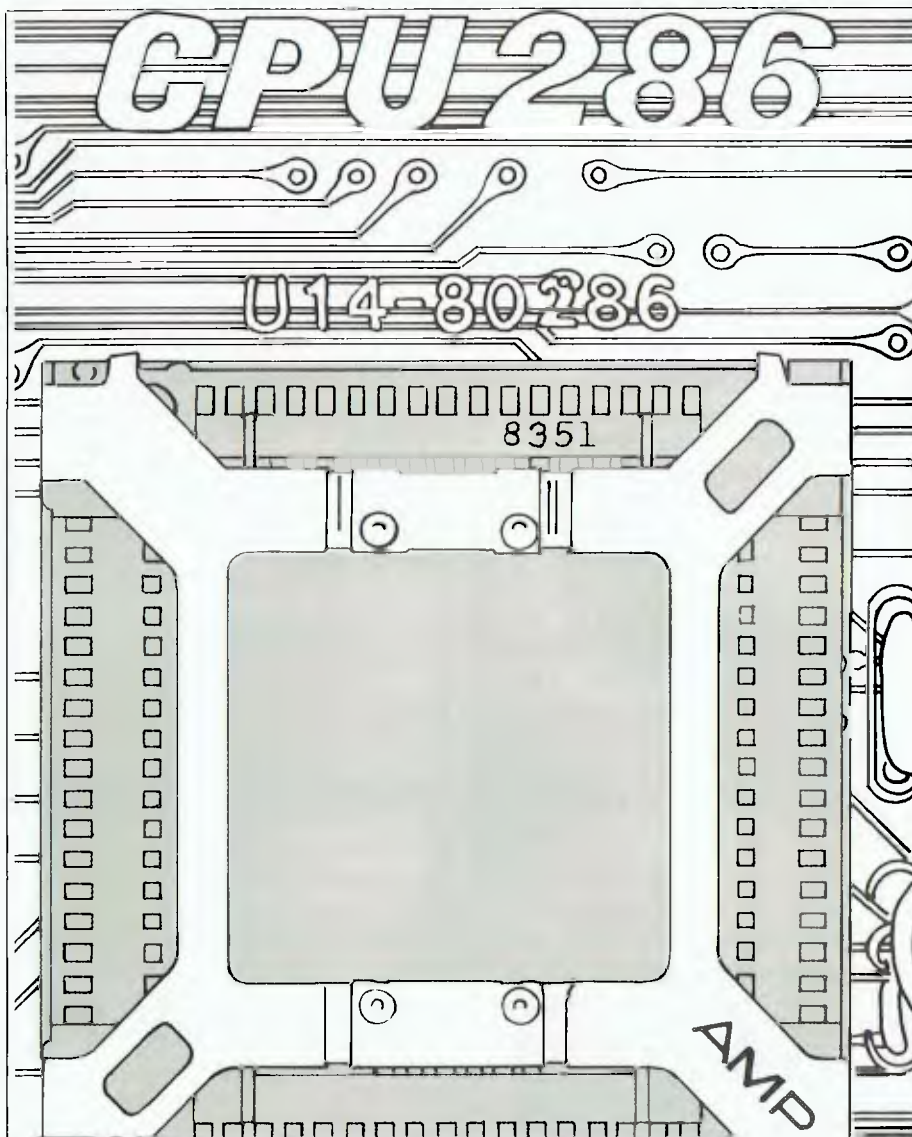


Figure 1: Intel's 80286 is a square chip with pins on all four sides.

accommodating operating system.

Virtual memory is a scheme by which programs and data are divided into "frames" that are swapped in and out of memory as needed. In the case of the 80286, a frame is almost always the same size as a segment.

The MMU keeps track of what frames are in RAM and where frames are on the disk. As memory is limited in any system, some frames must return to disk when space is needed for new frames.

The ideal method would determine the least-needed frames and send them back to disk — a decision made by the operating system based on any number of criteria. One common method, the "clock algorithm," sends frames back to disk if they haven't been accessed within a certain time.

Although the process of moving data and instructions in and out of memory is automatic, disk access takes time — a reason why virtual memory is most commonly used only on hard-disk systems. Even on a hard disk, a program can drag if it makes continual disk reads. Because a frame on the 80286 can hold up to 64K-bytes of data and instructions, the 80286 keeps disk access to a minimum. By matching frame and segment sizes, the 80286 also avoids some time-consuming logistical problems.

Single-user 80286

It's been noted several times that the 80286 supports multitasking. The term — one that's often dropped by

computerists in casual conversation — strictly means that a computer has several programs in memory at once, two or more of which are running simultaneously.

Actually, almost no computer can run two programs at precisely the same time. But, by putting several programs in memory and quickly switching between them, multitasking is neatly simulated.

Obviously, multitasking is at the heart of any 80286-based multi-user computer. But multitasking is also quite useful on a single-user system, as it allows quick access to many applications — spreadsheet, word processor, database management system, and others — and allows the powers of each to be greatly expanded.

The 80286's memory management also opens a single-user computer to powerful mini and mainframe operating systems such as Unix. More than one industry analyst has rightly noted the 8088's limitations in using Unix and similar operating systems. But an 80286-based micro, with its raw processing power, memory protection and abundant memory would easily handle Unix.

Digital Research and Microsoft are working on versions of Unix for the 80286. Digital Research, with the aid of Unisoft Systems, is developing a version for Intel based on Bell Labs' Unix System V. Once completed, it will be delivered to AT&T and licensed for use on the company's 80286 machines. Meanwhile, Microsoft is converting Xenix, its popular micro version of Unix, for the 80286.

Not surprisingly, Intel is several steps ahead of other hardware companies in getting software up and running on its own 80286 machine. Microsoft has already produced a version of MS-DOS (called 310 MS-DOS 1.0) that allows the Intel 286/310 computer to use such off-the-shelf software as WordStar and Multiplan.

A number of other popular programs have been specially sculpted for the 286/310 system, including Ryan-McFarland's Cobol compiler and Informix from

INTEL 80286

Relational Database Systems.

A single-user micro built around the 80286 could also simultaneously run application software under different operating systems. With the proper master operating system — one that co-ordinates other operating systems or emulates them — an 80286 micro could be a nearly universal computer. Programs would run as tasks under the appropriate operating system, which in turn would be a task under the master operating system.

Digital Research's Concurrent DOS 3.1 approaches this kind of integration via software; the Micro Craft Dimension personal computer does it by incorporating the necessary microprocessors on expansion boards. Both approaches are expensive and unwieldy and, on an 8088-based machine, rather slow. The 80286 can easily support this kind of

all-in-one integration, as it offers the necessary RAM, processing speed and memory protection.

An 80286 in your future?

No one knows if the 80286 will form the basis of the next generation of personal computers, as the chip is designed primarily for multi-user systems. Building a general-purpose personal computer around the 80286 might seem like overkill. But once the cost of the 80286 falls, a personal computer with virtual memory and efficient multitasking might be attractive. Apparently, the notion is attractive to IBM, as the PC AT proves. Other manufacturers are sure to follow.

A large part of the 80286's success hinges on IBM and, by logical extension, the availability of software.

This isn't a profound insight, but a proven one.

The other major consideration, of course, is price. An 80286 machine with a 20M-byte hard disk and 4M-bytes of RAM — the minimum configuration for a full-fledged multi-user system — would have to cost about \$US5000 to become popular.

Two years ago, such a system at that price would have been a pipe dream. Today that dream is almost within grasp. PC

Robert Luhn is the Associate Editor of US PC World. Rick Cooks is a freelance writer.



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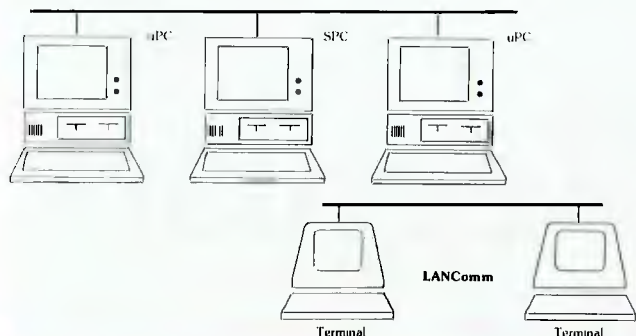
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The Single KEY Menu

The features of DOS 2.00 allow you to call both Basic and application programs from a single menu. Raymond DeMers explains.

A number of expensive software packages will integrate all the software you use into a tidy, coherent, menu-driven environment. Although you can't quite duplicate the sophistication of these packages with Basic and DOS, you can create a menu that lets you access and use off-the-shelf software and Basic programs from a single menu. All you need is DOS 2.00, BasicA, a RAM disk program, and a PC or compatible with 256K-bytes of memory.

Although creating this "Single-Key Menu" involves a little programming, no peeks, pokes or assembly language mnemonics are required. The Single-Key Menu exemplifies how DOS 2.00 facilitates the interaction of Basic programs and batch files. The result combines the benefits of an easily programmable high-level language with the conditional processing of batch file DOS commands.

Before you set up the Single-Key Menu, it's important to understand how the extended batch commands of DOS 2.00 can make life easier for you. When a PC loads DOS, it either displays the A) prompt or executes the instructions in an AUTOEXEC.BAT file. This type of file is used to automate a number of processes, from designating a default drive to

loading a frequently used application such as WordStar.

When you exit an application, you usually return to the DOS prompt. But if the command in the AUTOEXEC.BAT file (or any batch file) that calls an application is followed by another command, exiting the application returns control not to DOS but to the next command in the AUTOEXEC.BAT file. The batch file could then call another application program, execute a DOS command, or invoke Basic.

The command may also be followed by optional arguments. For example, the command BASIC MYPROG loads Basic, then runs the program called MYPROG.BAS. Exiting Basic with the command SYSTEM returns control to DOS.

Making the switch possible

Before DOS 2.00, returning to a batch file from an application or Basic always caused the execution of the next command in the batch file. But with DOS 2.00, batch file processing can be directed with the GOTO command to branch to any labelled line in the file.

A labelled line begins with a colon and is followed by a label name; this name is not displayed when the

FUNCTION KEYS

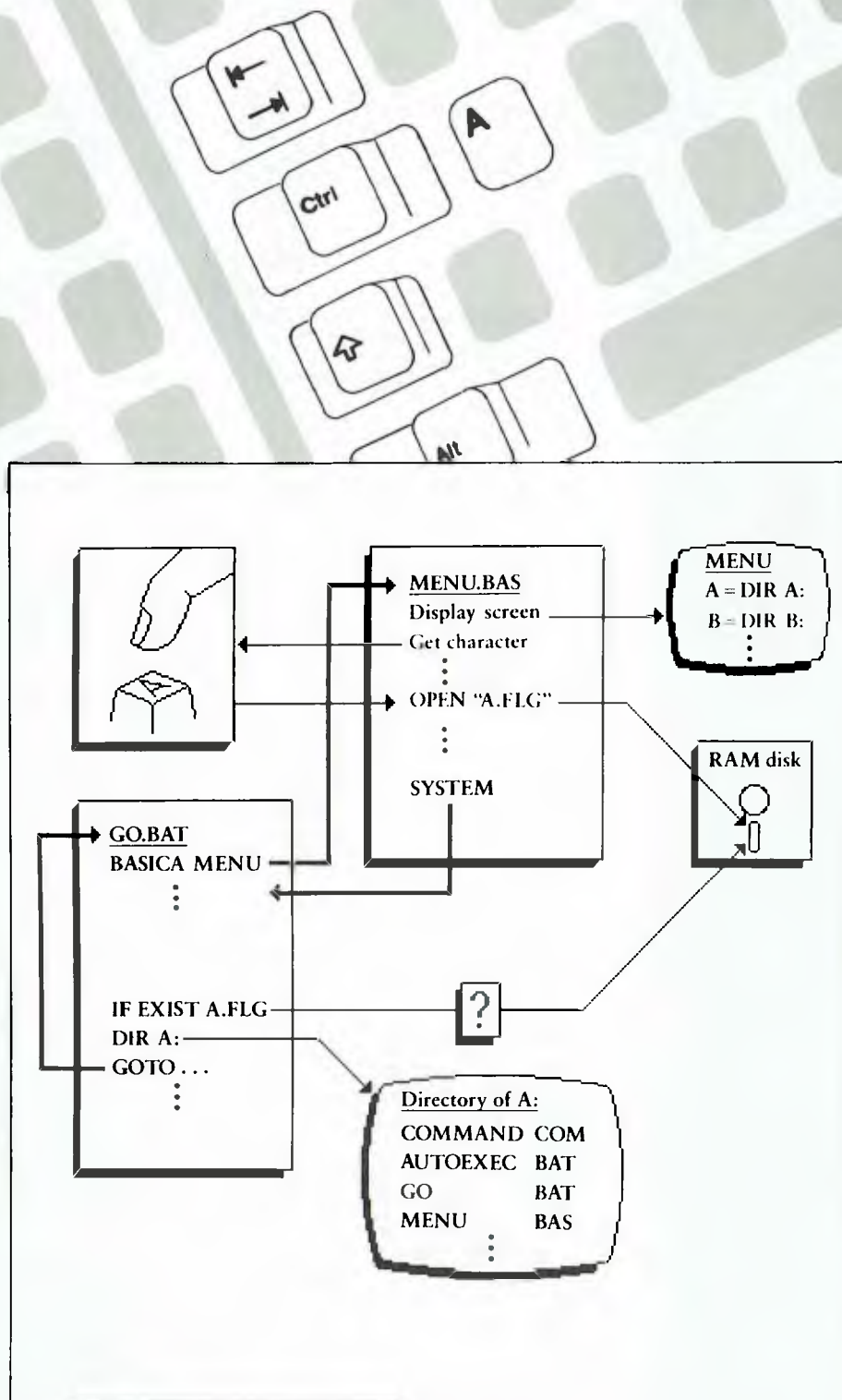


Figure 1: MENU.BAS displays the menu. In response to a keystroke (in this case the letter A) it creates a file on the RAM disk and returns control to GO.BAT, which processes the request and loops back the menu.

batch file runs. DOS 2.00 also allows a command's execution to depend on a value set by a previous program, the equality of two character strings, or the existence of a specific file in the current directory of a specified drive.

The last condition is vital in making the Single-Key Menu work, because the presence or absence of a particular file can control the execution of a batch file. The second important factor is Basic's ability to create and delete files. Figure 1 shows the relationship between the batch file GO.BAT and the Basic program MENU.BAS that control the Single-Key Menu.

Automatic setup

To use the Single-Key Menu, you must prepare a start-up disk that holds the essential AUTOEXEC.BAT file, a RAM disk program, plus any applications and Basic programs you might want to use. These programs, as directed by the AUTOEXEC.BAT file, will be automatically copied into the RAM drive.

An AUTOEXEC.BAT file will be automatically executed whenever the PC is turned on or reset with **<Ctrl> - <Alt> - **. This AUTOEXEC.BAT file will set up the system, creating a RAM disk containing the Single-Key Menu files (MENU.BAS and



Listing 1: AUTOEXEC.BAT sets up the files.

```
SCRNSAVE
VERIFY ON
PATH C:\
DATE
TIME
RAMDISK C-180
COPY COMMAND.COM C:\
SET COMSPEC=C:\COMMAND.COM
COPY VW.* C:\
COPY SC.* C:\
COPY BASICA.COM C:\
COPY GO.BAT C:\
COPY *.BAS C:\
C:
GO
```

GO.BAT), a Basic program (FIND.BAS), plus two sample application programs — SuperCalc 3 and Volkswriter — that can be called by the Single-Key Menu.

Listing 1 shows the AUTOEXEC.BAT file. The first command is 'SCRNSAVE', a .COM program that clears the screen if it has not changed in the last two minutes. This reduces wear and tear on the screen's phosphor coating. 'VERIFY ON' turns on the verification operation that directs DOS after each disk write operation to verify that the written data is readable. 'PATH C:\' tells DOS to look in the root directory of drive C: (the RAM drive) whenever it is unable to find a needed external DOS command file or an application program in the present directory of the default drive. Thus, the PATH command ensures that Single-Key Menu files can always be found.

The next two commands enable you to set the date and time. If you have installed a battery-powered clock/calendar board, replace the 'DATE' and 'TIME' commands with the command that sets the PC's system date. Also remember to copy the clock-setting program on to the startup disk.

'RAMDISK C-180' sets up a 180K-byte RAM disk as drive C:. Replace this with the command required by

```
ECHO OFF
CLS
C:
CD \

:BEGIN
BASICA MENU
CLS
IF EXIST DOS.FLG GOTO GETOUT
IF NOT EXIST DIRA.FLG GOTO DIRBFLG
DIR A:/P
PAUSE
GOTO BEGIN

:DIRBFLG
IF NOT EXIST DIRB.FLG GOTO DIRCFLG
DIR B:/P
PAUSE
GOTO BEGIN

:DIRCFLG
IF NOT EXIST DIRC.FLG GOTO VWFLG
DIR C:/P
PAUSE
GOTO BEGIN

:VWFLG
IF NOT EXIST VW.FLG GOTO SCFLG
VW
GOTO BEGIN

:SCFLG
IF NOT EXIST SC.FLG GOTO FINDFLG
SC
COPY *.PRN B:
COPY *.CAL B:
GOTO BEGIN

:FINDFLG
IF NOT EXIST FIND.FLG GOTO GETOUT
DIR B: > DIRFILE
BASICA FIND
GOTO BEGIN

:GETOUT
```

Listing 2: GO.BAT contains the main program loop.

the RAM disk program you use. (With Superdrive from AST, for example, the command would be SUPERDRV C:/M = 180.)

If your PC has more than 320K-bytes of RAM, use the appropriate parameters to create a RAM disk

that exceeds 180K-bytes. If your PC has more than 500K-bytes of RAM, set the parameters for a 360K-byte RAM disk; most RAM disk programs will not create a drive larger than 360K-bytes.

Like the clock-setting program, the

FUNCTION KEYS

RAM disk program must be copied on to the start-up disk. (If you don't have a RAM disk program, refer to the assembly language listing on pages 14 to 27 of IBM's DOS 2.00 manual. An assembler is required to convert this listing into a usable 180K-byte RAM disk program).

'COPY COMMAND.COM C:\' places a copy of the DOS command processor in the root directory of the RAM disk. 'SET COMSPEC = C:\COMMAND.COM' informs DOS that the command processor file can be found in drive C: and tells DOS its name. This allows DOS to find the proper command processor whenever it must be reloaded. Otherwise DOS will assume that the proper version of the command processor is in the drive from which it was first loaded — an annoying problem if you've replaced the disk with one that lacks a command processor or has the wrong version.

Next comes a set of commands that copies the files needed by the Single-Key Menu into the RAM disk's root directory. The command 'COPY VW.* C:\' uses the global file name character to put Volkswriter's main program file and the support files it needs into drive C:. 'COPY SC.* C:\' performs the identical process for SuperCalc 3. Replace these with the appropriate commands to copy the essential files for the word processor, the spreadsheet, and other application programs you prefer. Last, the Advanced Basic Interpreter, BASICA.COM, the Single-Key Menu batch file, GO.BAT, and several frequently used Basic programs (MENU.BAS) are copied. After everything is copied, drive C: is set as the default drive and GO.BAT is called.

Calling up GO.BAT

GO.BAT (Listing 2) is the batch file half of the Basic/batch file team. This batch file calls the Basic program MENU and all the DOS applications and commands available

from the Single-Key Menu. For convenience, the first command is ECHO OFF, which is used to inhibit the display of subsequent batch file commands. (Echo is turned on whenever a batch file is called.)

C: ensures that drive C: is the default drive. :BEGIN is a label (preceded by a colon) and is not executed. Batch processing skips to the next executable command, which in this case loads BasicA and runs MENU.BAS.

When a valid menu selection is made, MENU creates a file in drive C: and calls DOS with the command SYSTEM, which returns control to the next line of GO.BAT. This new file is given a name based on the menu choice and assigned the .FLG (flag) extension. The file's name and extension enable GO.BAT to make decisions based on the file's presence or absence.

If DOS is selected from the menu, GO.BAT must be exited. But getting to the DOS prompt from a batch file cannot be done with a command. DOS can only be reached by going to the end of the batch file.

Therefore, once control is returned to GO.BAT, the command IF EXIST DOS.FLG asks the PC if the file DIS.FLG exists. If it does, batch processing is transferred to the command following the label :GETOUT. Because no commands follow :GETOUT, GO.BAT is exited and control returns to DOS. Typing

GO (Enter)

at the DOS prompt retarts the Single-Key Menu.

If the DOS.FLG file doesn't exist, GO.BAT checks drive C: to find out which .FLG file was created by looking for each in turn. When the .FLG file is found, control passes to the next line, which calls the application program or DOS command chosen via MENU.

Returning from an application or a DOS command passes control to the next command in GO.BAT. If the application or command has stored data in the RAM disk that you want copied to a permanent disk, the

appropriate COPY commands should come immediately after the command that called the application. For example, the COPY commands that follow SC in GO.BAT copy all SuperCalc spreadsheet and print files to drive B:.

Note that each labelled section of GO.BAT (except GETOUT) finishes with a GOTO command that transfers control to the command following the :BEGIN label, which executes the command BasicA MENU. The Single Key Menu is now ready to accept your next selection.

Creating the Basic menu

MENU.BAS (see Listing 3) is a simple Basic program. Its first task is to delete (KILL) all files in drive C: that have the .FLG extension. Since a KILL command issued in the absence of a target file results in a system error, the file DUMMY.FLG is opened and closed before the KILL command is given so that at least one flag file exists.

After the menu is displayed by lines 150 through to 270, line 310 accepts a single key input, compares it to the string of acceptable characters, and sets the value of MENUCHAR equal to the matching character's position in the string (or to zero if there is no match).

Both uppercase and lowercase characters are acceptable. At line 370, CHOICE, derived from MENUCHAR, is used to go to the appropriate line, which then creates (OPENs) the correct .FLG file. If CHOICE equals zero — which signals an unacceptable input, such as R — the program drops to line 400 and is directed back to line 310 to get another character.

If the menu choice is a DOS application or command, a .FLG file is created, DOS is called, and control returns to GO.BAT. If a Basic program that does not require preparatory DOS calls is chosen, a .FLG file is not created — the program is called directly by MENU

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FUNCTION KEYS

with the command `RUN filename`. (An example of this is shown in line 7000.) Each such Basic program must end with the command `RUN MENU` to return you to the Single-Key Menu.

A Basic program is usually run from and returns to `MENU` without

leaving Basic. But some Basic programs (such as `FIND.BAS` in Listing 4) require that certain DOS calls be made before they are run. There is no Basic command that lets a program get at a directory of a disk (the basic command `FILES` allows viewing but not the use of the

file names it returns), so `FIND` requires the preparatory DOS command `DIR B:> DIRFILE`. Therefore, `FIND` is not run directly from `MENU`. Instead, `MENU` creates the file `FIND.FLG` and returns control to `GO.BAT`. The existence of this flag file causes the batch file to

```
100 ' ***** The Single-Key Menu *****
110 '
120 OPEN "DUMMY.FLG" FOR OUTPUT AS 3:CLOSE ' * Open one .FLG file *
130 KILL "C:\*.FLG" ' * so all may be KILLED *
140 '
150 S=20 ' * S=Space from left to beginning of titles *
160 '
170 CLS ' * Clear screen, then print headings and titles *
180 '
190 PRINT:PRINT SPC(S) "***** M A I N M E N U *****"
200 PRINT:PRINT SPC(S) "(A) Directory A"
210 PRINT:PRINT SPC(S) "(B) Directory B"
220 PRINT:PRINT SPC(S) "(C) Directory C"
230 PRINT:PRINT SPC(S) "(D) OS"
240 PRINT:PRINT SPC(S) "(F) ind"
250 PRINT:PRINT SPC(S) "(S) uperCalc"
260 PRINT:PRINT SPC(S) "(T) elecom"
270 PRINT:PRINT SPC(S) "(V) olkswriter"
280 '
290 LOCATE ,,0 ' * Turn off the cursor *
300 '
310 MENUCHAR=INSTR("AaBbCcDdFfSsTtVv",INPUT$(1)) ' * Get a character *
320 '
330 CHOICE=(MENUCHAR+1)\2 ' * Convert so "A" or "a" = 1, "S" or "s" = 6, etc. *
340 '
350 ' * If CHOICE = 1 TO 8, GOTO the appropriate line *
360 ' DIRA DIRB DIRC DOS FIND SCAL TCOM VOLK
370 ON CHOICE GOTO 1000,2000,3000,4000,5000,6000,7000,8000
380 '
390 ' * If CHOICE = 0, character entered is not acceptable *
400 GOTO 310 ' * Loop back and get another character *
410 '
1000 OPEN "DIRA.FLG" FOR OUTPUT AS 3:CLOSE
1010 SYSTEM
1020 '
2000 OPEN "DIRB.FLG" FOR OUTPUT AS 3:CLOSE
2010 SYSTEM
2020 '
3000 OPEN "DIRC.FLG" FOR OUTPUT AS 3:CLOSE
3010 SYSTEM
3020 '
4000 OPEN "DOS.FLG" FOR OUTPUT AS 3:CLOSE
4010 SYSTEM
4020 '
5000 OPEN "FIND.FLG" FOR OUTPUT AS 3:CLOSE
5010 SYSTEM
5020 '
6000 OPEN "SC.FLG" FOR OUTPUT AS 3:CLOSE
6010 SYSTEM
6020 '
7000 RUN "TELECOM"
7010 '
8000 OPEN "VW.FLG" FOR OUTPUT AS 3:CLOSE
8010 SYSTEM
8020 '
9000 END
```

Listing 3:
MENU.BAS displays
the menu options,
and may be
easily modified.

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TOP25 supports both Virtual Calls (VC's) and Permanent Virtual Circuits (PVC's). Up to 8 logical channels may be active simultaneously. Considerable attention has been paid to the user interface and facilities are provided to integrate the TOP25 software with the users own application software. This has resulted in three major TOP25 variants.

1. **TOP25 "generic" version:** For plain X25 transmission and reception of data from or to standard PC-DOS disk(ette) files. Data may be in any code or structure, including binary. The X25 control functions such as setting up virtual calls are exercised via the keyboard.
2. **TOP25 with TOPCODE-supplied terminal emulation module such as IBM 3278 or DEC VT100:** Terminal emulation and X25 support are combined. Taking 3270 as an example, TOP25-3270 is functionally equivalent to a single station 3270 terminal with NIA (Network Interface Adapter). TOPCODE will expand the number of terminal handling modules or emulators for other commonly used terminal types.
3. **TOP25 user callable version:** The user callable version provides an easy to use X25 packet level interface. The X25 software is supplied in a form suitable for integration with the user's own application software. All X25 features, including control over the Q- D- and M-bit, setting up calls, etc. can be controlled in a simple manner from within the user's programmes. Ideal for those organisations who want to build their own high level protocols or automatic procedures incorporating X25 access to the public data switching network.

X25 specifications: Level 1 - CCITT - X21-bis (RS232)

Level 2 - CCITT LAP-B/Modulo 8 frame numbering/Adjustable window-size.

Level 3 - 8 logical channels may be active simultaneously. Packet type support includes call-setup and -clearing, RESET, RESTART, REJECT and INTERRUPT. Optional user-control over D, Q and M bits. Adjustable window-size. Modulo 8 packet numbering.

Transmission Speeds:

Up to 19200 BPS



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St Leonards NSW 2065.
Phone: (02) 439 5966
Telex: AA23941.

New Zealand Agents:
Skellerup Microsystems,
124 Marshall St, Wolston, Christchurch.
Phone: (3) 810460.
MC-P Applications,
Auckland. Phone: (9) 34545.

FUNCTION KEYS

```
100 ' ***** The BASIC program FIND *****
110 CLS:LOCATE 3,1,0
120 PRINT:PRINT "          ** The BASIC Program FIND **" :PRINT
130 PRINT:PRINT "          This program was called directly from GO.BAT and"
140 PRINT:PRINT "          will return to GO.BAT when you hit a key." :PRINT
150 PRINT:PRINT "          Although the BASIC program MENU could be RUN from"
160 PRINT:PRINT "          here, returning to GO.BAT keeps things in order."
170 PRINT:PRINT:PRINT
180 PRINT "NOTE: The command DIR B:>DIRFILE was issued from GO.BAT so"
190 PRINT "          the FIND program could READ each file name in drive B:"
200 A$=INPUT$(1)
210 CLS:SYSTEM
```

Listing 4: FIND.BAS can be used from the menu to obtain a directory.

write the directory of the disk in drive B: into the file DIRFILE, load BasicA, and runs the Basic program FIND.BAS.

The last command in a Basic program run from GO.BAT should be SYSTEM, which returns control to GO.BAT and then, via :BEGIN, to BasicA MENU.

Although remark lines are usually deleted in a program, line 360 should be retained. The labels positioned over the ON . . . GOTO line number list in line 370 are a valuable aid for developing and modifying the menu. Extra applications are easily added to the Single-Key Menu. Simply add the selection to the bottom of the main menu display (after line 270 of MENU.BAS), append both the uppercase and lowercase of the letter that will be used to select the application to the string of valid choices in line 310, append a new line number on the ON . . . GOTO line number list in line 370 (and add an identifying label to the remark line 360), and add a new line (using the new line number appended in line 370) containing an OPEN statement to create a unique .FLG file, followed by the statement CLOSE and the command SYSTEM.

GO.BAT must also be modified. Insert a new unique label before :GETOUT, followed by the IF NOT EXIST *new .FLG file* GOTO GETOUT conditional command, the command to call the application, and the command GOTO BEGIN. Also

change GOTO GETOUT (in the previous selections IF . . . GOTO command) to GOTO *new label*.

Adding the application's necessary program files to the start-up disk and adding to the AUTOEXEC.BAT file the proper commands that will COPY these files to the RAM drive

With the single-key Menu, these programs are called by a single keystroke, and exiting a program returns control to the menu.

completes the modification of the Single-Key Menu.

The RAM disk

Without a RAM disk, the Single-Key Menu would be prohibitively slow because of the repeated reads of disk directories and the repeated searches for labels, which always begin at the top of the batch file. Besides, a RAM disk is desirable in any disk-intensive application program.

Application programs can usually

be trimmed to fit into a RAM disk. Some programs have tutorial and help files that may not be needed for everyday operation. Some have multiple printer tables, and chances are you'll need only one. Programs also often have separate utilities that duplicate DOS commands such as COPY, and these can likewise be omitted.

With such snipping I squeezed the necessary parts of Volkswriter, SuperCalc, a telecommunications program, and some everyday utilities into a 180K-bytes of RAM disk. With 320K-bytes of memory in the system, 140K-bytes is left for program use. With the Single-Key Menu, these programs are called by a single keystroke, and exiting a program returns control to the menu. It may not be the fanciest way to integrate software — there aren't any mice to play with, any windows to open and shut, or any icons to dump into miniature trash cans — but it works. And it's free. PC

Raymond DeMers is a district sales manager for Ramtek Corp.

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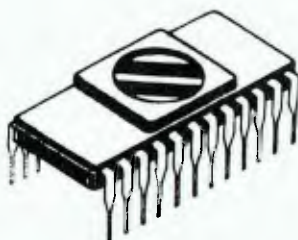
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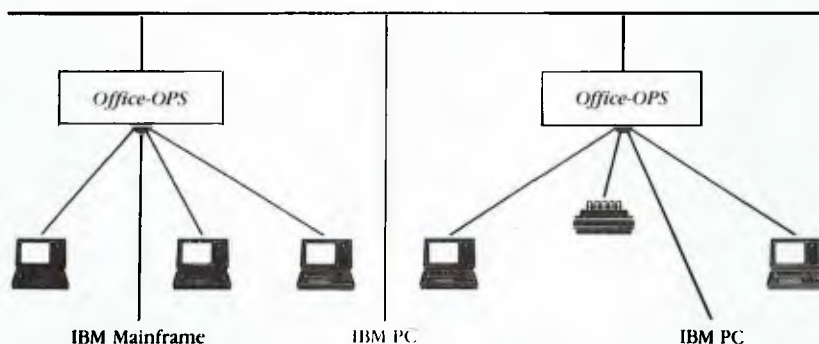
Title

Company

Address

Telephone

A local area network running under Xenix*



IBM UNVEILS AUSTRALIAN-MADE POS TERMINAL

The Tasmanian Development Authority is helping to fund local production of a new point of sale terminal, the PC Cashier, which was designed by Australian company HRC (Hospitality and Retail Computing). The PC Cashier is to be produced in Tasmania, where an assembly plant and software development team are being established with the help of a \$600,000 grant from the authority. HRC estimates it will have spent \$1.5 million of its own money on the project.

Production is due to begin in March 1985 at a rate of 100 machines per month, with target sales for the first 12 months set at 1000, growing to 3000 during the second 12 months. Development of the PC Cashier was encouraged by IBM Germany, which first noted HRC's computerised system at the Hanover Fair of 1983. At this time HRC was using a Japanese cash register connected to the PC and incorporating various communications and I/O boards developed by HRC. IBM argued it could not support the product until it looked more like a PC, hence the new design.

An extensive marketing drive is scheduled for the European market early in 1985, leading up to the next Hanover Fair where it will again be demonstrated — this time by IBM Germany. The targets for 1985 call for 40 per cent of the PC Cashier output to be sold in Australia, 30 per cent in Europe and another 30 per cent in the US.



In its basic configuration, a single PC Cashier sits on top of the IBM PC system unit and is connected to it. The retailer can record transactions on the cash register and process summary reports on the PC after hours, or transmit them to a bureau for further processing. In larger configurations a cash register connected to an XT would process the cash transactions, and simultaneously the XT would process reports or be used for other applications such as word processing or spreadsheet forecasting.

The PC Cashier contains a 7in monochrome screen plus a 16-character dot matrix display for instant registration and verification of sales. The keyboard has a maximum of 114 keys, all individually programmable. A custom-designed overlay allows the format and number of keys to be determined by the register programmer. The PC Cashier includes a two-station receipt and audit roll printer, and up to

300K-bytes of CMOS memory enables storage of programs and files unique to the register.

Options include an integrated magnetic card reader, a WMF pen ID reader, and a customer display for use in applications where it is important for the customer to see the transactions as they are being recorded. The IBM PC used is standard except for an HRC-developed board which allows the two units to work in conjunction and assists with the installation and parametrisation of the register.

With around 50,000 systems expected to be sold during 1985 in the intelligent POS area, the potential world market for such devices is very large indeed. HRC claims to be committed to continuing the design and enhancement of the PC Cashier using Australian skills, and to have a long-term plan of manufacturing and assembling in Australia.

— IAN ROBINSON

IBM SOFTWARE — WILL THE SPARK IGNITE?

With its windowing environment and first application programs serving as knife and fork,

IBM is preparing to cut itself a generous slice of the microcomputer software pie. Given the power of its name and its massive marketing and support organisations, most observers expect IBM will have little trouble getting fat.

Just how heartily IBM feasts outside its "true blue" dealer network and customer base, however, depends on its products' technical competence and degree of aftermarket support. If the products are too programmer-oriented, a common criticism levelled at the company's in-house-developed large system software, and the support unsatisfactory, IBM will be forced to scramble up the same learning curve almost every other software maker has climbed, observers say.

On the other hand, if IBM is successful on all counts, which is uncertain, it could dominate the market quickly. IBM's motivation for developing its own software is not to gain complete control of the market but to give its sales force the opportunity to present dealers and customers with a turnkey package developed in-house.

This will give the company greater control over profits in an industry subject to wild mood swings, observers say "The scenario people are building is that they (IBM) are going to blow everyone out of the water, but that is not going to happen," says Chris Christiansen, senior analyst with The Yankee

Group Inc, a Boston-based market researcher.

"They are betting on a long-term strategy, but that doesn't mean they're going to cut off short-term revenues from the resale of third-party software. You could probably get fired at IBM for bringing up strategies like that."

People may not be fired, but it's a safe bet they would not merit a quarterly bonus either. On the strength of third-party sales only, IBM was second only to Apple Computer, with more than \$US100 million in software revenue for 1983, The Yankee Group said.

Analysts speculate that IBM's long-term strategy for software will trace the one it used with the PC: introduce an adequate product that will evolve during the next year or two with enhancements dictated by proven market trends. There is no calculated grand scheme, most analysts say.

"They are throwing out different products to see what the market likes," Maureen Fleming, software analyst with International Resources Development Inc, a Connecticut research firm, said. To prove the disunity in IBM strategy, Fleming said TopView, the PC-DOS-compatible windowing environment, worked with the Personal Decision Series, but not with the Business Management Series and Displaywrite 3, IBM's latest office system package.

"IBM may be confused, they may not care or they are just waiting to see what will happen," Fleming said. If there is a master scheme, Fleming thinks it will centre upon the company's office systems software and not the recently announced stand-alone productivity and accounting packages. "What you will see is more and more hooks built into the office software for (stand-alone) products that do well," she said.

IBM revealed the first piece of its software strategy in August, when it introduced TopView. Most major

software developers gave a cool reception to the program, saying it offered little innovation.

Consequently, developers said TopView was only one of two or three integrating environments for which they would write.

But with the news last month that Microsoft Corp's MS-Windows would be delayed until June, TopView's stock went up among developers. Analysts say the six month difference in availability between the two products could prove critical. But with Digital Research Inc's announcement of GEM, an impressive "Mac-alike" windowing package for the PC and compatibles expected by April, IBM will still have an immediate and serious challenger to face.

IBM has cautioned that the version of TopView unwrapped in August may not be the version delivered in January. True to form, the company has hinted it might redesign the package based on advice developers give.

The company has already held one meeting with all the major developers and plans at least one more, once source says.

In late September, IBM unveiled the second piece of its software puzzle by announcing its Personal Decision Series, a line of productivity packages expected to compete against the offerings of Lotus Development Corp, Ashton-Tate and Micro-Pro International Corp; and the Business Management Series, a collection of compatible accounting modules that will go up against the offerings of Open Systems Inc, Real-World Corp and Peachtree Software Inc.

After an extremely disappointing three months to September, dealers are generally enthusiastic about IBM's plunge into the software market. What is most responsible for the dealer enthusiasm is not the products but the pay-as-you-sell arrangement IBM is offering. Evaluating the product's technical

competence, most dealers felt the programs weren't programmer-oriented and contained a fair amount of "real-world functionality".

Christiansen disagrees, saying the programs are more suited to data processing managers than inexperienced middle managers. "They develop products for a customer base (data processing and management information professionals) they are familiar with," Christiansen said. "When they (IBM) figure it all out, they will enhance the products to make them more attractive to small and medium-size businesses."

Makers of both productivity and accounting software exude the usual air of nonchalance when asked how the IBM announcements affect their future strategies. Most say the IBM products were either priced too high or too low to effectively compete against them, aren't rich in features, that IBM's concept of integration differed radically from theirs, and of course that old standby — that there is always room in the market for a second and third product.

Most companies believe that these rationales are only so much veneer to be scraped away when IBM eventually lowers the price, adds functionality or mounts a huge advertising campaign. The only companies with secure futures are those like Lotus and Ashton-Tate, whose products have become de facto standards in large companies.

Some analysts say no company, no matter how entrenched it is in corporate America, is safe in the long term. They say IBM has become a \$US40,000 million company by specialising in selling to the Fortune 1000.

"You can't assume even Lotus and Ashton-Tate are safe," Fleming said. "The most frightening thing is VisiCorp being sold to Paladin. They got the whole microcomputer industry rolling with VisiCalc and had the most innovative product (Visi On) to come around in 20 years, only to get

SHAREWARE CONCEPT LAUNCHED VIA BBS IN QUEENSLAND

As well as hardware, software, firmware and courseware a new phenomenon is emerging in Queensland — namely, shareware. Programmer Ian Bennetts is introducing the shareware concept on a new bulletin board service (BBS) for PC and compatible users. Shareware (also known as freeware or tryit) originated in the US, as an attempt to combine the best features of public domain software and commercial packages. The idea is intended to allow users to test-drive software without making any financial commitment.

If the particular package is found

to be helpful, the user may submit the author a nominal fee — normally less than \$70. This places the user on an update list and entitles him or her to hotline support from Bennetts' Tomorrowland BBS — claimed to be one of the first fully commercial BBS in Australia.

The shareware concept is intended to give users access to high quality software while at the same time cutting marketing costs for the program authors. Shareware is claimed to be well-written software in general, yet lacking the commercial polish of off-the-shelf packages. All the documentation is supplied as a text file on the disk which may be printed out if required.

PC owners with XMODEM communication capability can download shareware products from Bennetts' BBS by dialling (07) 286 2438. The joining fee is currently \$15, giving users access to about 1000 programs, 315 of which are shareware and the remainder public domain. Bennetts plans to open a second commercial BBS in Sydney early in 1985.

— PETER YOUNG

sold to two former employees. If that can happen to VisiCorp, it can happen to anyone."

It has been suggested in the past that the best defence smaller competitors have against IBM is to be technologically innovative. But most of these smaller software producers now think that aligning themselves more closely with cash-rich hardware manufacturers, such as Apple and Compaq Computer Corp and offering dealers better margins will provide better protection.

Based on functionality and the nature of the application, analysts believe IBM will have an easier time sustaining its initial success with its productivity series than its

accounting packages. Most think the data management program is impressive enough to pose a serious threat to dBase II. "The database along with the report generator can be a pretty powerful tool," one analyst said. "Of course, a lot will depend on how they market it."

A source close to Lotus said that company's management team exhaled a collective sigh of relief when it saw what it considered to be the inferior capabilities of IBM's spreadsheet program. Reportedly, Lotus believes it has another six to 12 months before IBM begins to put pressure on, either through price or added functionality.

— ED SCANNELL

IBM REBATES PAVE THE WAY FOR A NEW PC

IBM has introduced new retail and direct sales rebates that are expected to further drive down retail prices of the company's PC products, according to US dealers.

Although the rebates will result in increased sales, dealers said they were not expecting to see increased profits. In fact, some dealers said they would lose money and market share because of severe discounting that is expected.

Analysts speculated the rebates were intended to clear increasing inventory to make way for a new IBM PC, possibly a replacement of the PC, that will be introduced next year. The products affected by the dealer rebates are IBM PC, PC XT, Portable PC and PCjr.

"The rebates are going to lead to massive discounting, in order for people to move volume," one IBM dealer said. "IBM is looking to get rid of what obviously has to be an excess of product. They do not want to be in the warehouse business."

Observers said the rebates were a way for IBM to encourage the channel to cut product prices for the holiday selling season, without an official price reduction. "It's a camouflaged price cut," one dealer said.

The rebates could be a "clearance sale to reduce inventory levels and position a new product," Chris Christiansen, a senior analyst for The Yankee Group of Boston, said.

Christiansen speculated that IBM would introduce a new PC based on the 80186 microprocessor.

Rebates are set according to the size of the order increase. Maximum

rebates are \$US350 for the PC XT; \$US100 for the Portable PC; and \$US100 for the PC.

The retail rebate program does not cover PC inventory in stock, which has been significantly increasing in the last two months, dealers said. "I've got to buy new volume to get the rebate to be price competitive in the fourth quarter, but what am I going to do with the inventory I have now?" an IBM dealer asked. "I'm going to have to start selling the inventory I have on hand at a lower price to match the competition."

Dealers said present inventory would not be covered if IBM dropped prices in January. IBM dealers said

they did not experience dramatic increases in sales for the PC after price cuts in June. Instead, inventory continued to mount, they said.

Some dealers expressed concern that the rebates would encourage over-ordering, leading to further surplus inventory.

The retail rebate comes hard on the heels of another rebate program offered by IBM's direct sales outfit, the National Accounts Division.

Dealers claim the NAD rebate will further hinder dealers' attempts to sell to large accounts or the Fortune 1000 market.

— STEVEN BURKE

PC APPRENTICE AIMS AT EDUCATION MARKET

At the recent release of the PC Apprentice software series, IBM Australia announced its intentions to "very strongly establish itself in the education market from kindergarten to tertiary level."

According to Geoff Charwick, education adviser, southern region for IBM, the company has not put a lot of commitment into education in recent years, and has been maintaining a corporate thrust. The new software series (which IBM has endorsed and is marketing jointly with Prentice-Hall) is a step in the right direction.

The concept behind PC Apprentice is to provide training and experience in available commercial software packages such as Wordstar,

dBase II, Fortran 77, UCSD Pascal, Multimate, Word Perfect, BPS Business Graphics and others. But these tutorials are not simply books or simulations of the packages in operation, rather they are the original packages modified slightly to inhibit performance.

The benefit of this is that the user can experience using commercial software packages directly. An example of the modifications: the Word Perfect package will automatically print "SSI" at the end of each paragraph, and any files stored will not be compatible with the commercial version of the program; dBase II will not allow any more than 32 records a file and each page of output will show the message "Ashton-Tate dBase II educational version".

One of the most interesting modifications was the Visifile system which has not been modified.

There is a drawback though. You need an IBM PC, and it seems unlikely that a great number of students will have PCs at home. There are "no plans to look at any other hardware than IBM".

— CHESS WADE

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LOCAL BULLETIN BOARDS TIGHTEN UP

Adverse circumstances have forced several of the more popular Australian bulletin board systems to change from charge-free open systems to tightly-controlled closed systems, complete with user registration fees and password protocols. This has occurred as a result of recent outbreaks of software piracy and electronic graffiti.

BBS operators report instances where copies of non-public domain software such as Lotus 1-2-3 and Wordstar have been uploaded on to their BBS late at night for the benefit of would-be software pirates. There have also been many occurrences of electronic graffiti appearing recently, including offensive messages and lists of stolen passwords for various systems.

As similar incidents have been widespread throughout the US and Europe BBS scene over the last twelve months, it was only a matter of time before it began in Australia. Still, it is unfortunate that it has happened so quickly, as the PC communications boom has only just begun over here, and many potential channels of support and information

have now been closed off to novice users.

Therefore, most BBS have now quietened down from the frenetic activity of a few months ago, and registered customers have a much better chance of getting through. Most BBS still maintain a limited range of options for BBS "visitors", including details of registration and the possibility of reading (but not writing) messages on the bulletin board. All the best parts, however, such as message creation and the downloading of public domain software are reserved exclusively for paid-up customers.

The amount of software available continues to increase in volume and sophistication, and in many cases the software outweighs the available hard-disk space, and must be "rotated" at regular intervals by the sysop.

User group meetings

Meanwhile, back at the user group front, activity does not seem to have died down at all over the summer break, with most user groups reporting record attendances for their

PC USER GROUPS

Sydney PC User Group

Address: GPO Box 5010,
Sydney NSW 2001.
Contact: Vince Sweeney (02) 221 2311.
Meetings: 5.45pm third Monday.
Deloitte, Haskins & Sells,
7th Floor, 6-18 Bent St, Sydney.

MELB-PC

Address: 500 Bourke St,
Melbourne 3000.
Contact: Chris Leptos (03) 605 2222.
Meetings: 5.30pm third Wednesday,
Clunies-Ross House,
191 Royal Pde, Melbourne.

IBM-PC Users' Group (SA)

Address: PO Box 68,
Walkerville, SA 5081.
Contact: Don Richards (08) 261 9590.
Meetings: 7.30pm first Thursday,
173 Wakefield St,
Adelaide (or as advised in PC News).

The Illawarra IBM-PC Club

Address: PO Box 77,
Port Kembla, NSW 2505.
Contact: Ken Jeffrey (042) 74 0422.
Meetings: 7.30pm first Tuesday,
John Lysaght,
Springhill Street Training Centre.

ACT PC Users' Group

Address: PO Box E188,
Queen Victoria Tce, ACT 2600.
Contact: Nick Hammond (062) 86 1102.
Meetings: 8pm fourth Monday.
Main lecture room,
Canberra TAFE, Reid.

Perth PC Users' Group

Address: 95 William St,
Perth, WA 6000.
Contact: Tony Farrell (09) 320 8245.
Meetings: 5.30pm last Monday.
Amherst Room, Bluenote Tavern,
160 Collins St, West Perth.



A selection of user group newsletters.

LOTUS USER GROUPS

Sydney

Address: GPO Box 5010
Sydney 2001.
Contact: Ron Pollak (02) 290 3655.
Meetings: 7th Floor,
8-18 Bent St,
5.45pm, first Thursday of month.

Melbourne

Address: PO Box 4720, Spencer St,
Melbourne 3001.
Contact: Robert Taylor (03) 267 4800.
Meetings: Light Car Club,
46 Queens Rd (cnr Roy St),
5.30pm, first Tuesday of month.

Adelaide

Address: GPO Box 1969,
Adelaide 5001.
Contact: Paul Wragg (08) 223 5711.
Meetings: 173 Wakefield St,
Adelaide.
7.30pm, first Tuesday of month.

Brisbane

Address: PO Box 24, North Quay,
Qld 4000.
Contact: Bill Savage (07) 221 2144.
Meetings: (Duesbury's) 30th Floor,
239 George St, Brisbane,
5.30pm, first Tuesday of month.

Multiplan Users Group

Address: PO Box 95, Forestville
NSW 2087.
Contact: Richard Womack (02) 997 1554
Meetings: MTE Centre, 2nd Floor
cnr York and Market Sts, Sydney,
6.15pm, 2nd Wednesday of month.

dBase Users Group

Address: PO Box 297,
Neutral Bay Junction, NSW 2089.
Contact: Maria Lengas,
Meetings: MTE Centre, 2nd Floor,
cnr York and Market Sts, Sydney.
6.30pm first Tuesday of month.

first meetings for 1985. The Sydney PC user group has moved to bigger and better premises, courtesy of the accounting company, Price Waterhouse, which has donated a seminar room for the remainder of 1985, complete with large-screen monitors and overhead projection equipment.

The Sydney group regularly attracts more than 100 to meetings, and is creating the first of a number of special interest groups (SIGS) which will cover the subject of PC communications. One of this group's first projects will involve the establishment of a bulletin board system, operating on a PC XT system on loan from Grace Bros Computer Centre, using the Crosstalk XVI communications package and a Netcomm PC In/Modem.

The Sydney user group has already decided themes for meetings in the first half of the year:

February 18 — Graphics
March 18 — Word Processing
April 15 — Database
May 20 — Spreadsheets
June 17 — Printers/Plotters

Apparently, presentations to user group take a very low priority compared with the prospect of a final sale or staff meeting.

Sydney so far appears to have the most special interest (PC-based) user groups, with the Multiplan user group now joining the firmly established Lotus and dBase user groups. Users with an interest in all three of these application programs are now faced with the daunting prospect of almost one meeting per week!

The NEC APC user group of NSW is off to a flying start, according to publicity officer David Crawford, who may be contacted via PO Box 568, Milsons Pt, NSW 2061. The audience at the inaugural meeting consisted mainly of business users, and the subject for discussion that night was dBase II.

Newsletters popular

The Melb-PC newsletter has changed its name to *PC Update* and is now available to members of the Sydney and Perth user groups, who will submit articles and group meeting reports. This will make *PC Update* the closest thing so far to a national user group newsletter.

The newsletter is exceptionally well-produced, and sells out whenever displayed at the Sydney user group meeting. Articles and helpful hints reproduced from US user group magazines seem to be most popular.

BBS WATCH

New South Wales

Dick Smith Electronics RBBS
(02) 887 2276
Mi Computer Club BBS (02) 662 1686
Micro Design Lab RCPM
(02) 663 0151
Newcastle RCPM (049) 68 5385
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Legendary graphs

Here is an easy way to put floating legends virtually anywhere on a Lotus 1-2-3 graph. The trick is to create them as labels for an "invisible" data range — one that will not appear on the screen.

First set up a data range composed of blank cells. Enter the vertical co-ordinates of your text in the appropriate cell and leave the other cells blank. Choose a second blank range and enter the desired legend text in the corresponding cell.

For example, if a graph has 12 numbers in its X range, and you want to place text over the third number (at vertical co-ordinate 600), create a range of 12 cells, all blank except for '600' in the third cell. Create another range of 12 blank cells with the text of the legend in the third cell. Assign the two ranges as Data and Data Labels, respectively, and use the /Format Neither command to suppress the data range so that only the text will appear.

This technique is flexible because there is no restriction on the length of the text (except for the size of the graph itself), and any number of leading spaces can be used to refine its position.

Everette Gardner

```
10 INPUT "Number of bits";BITS
20 INPUT "Seeds";A,B
30 MAX=2^BITS-1
40 A=2*A:B=2*B
50 IF A>MAX THEN A=A-MAX
60 IF B>MAX THEN B=B-MAX
70 C=A+B:IF C>MAX THEN C=C-(MAX+1)
80 C=2*C:IF C>MAX THEN C=C-MAX
90 PRINT C
100 A=B:B=C
110 GOTO 70
```

Listing 1: RANDOM.BAS program uses bit-shifting algorithm.

Truly random

I have developed a random number generating algorithm that avoids some of the drawbacks of other methods, and appears to be somewhat faster. One of the major faults of random numbers is that they have a finite "string length" (the number of "random" numbers that are produced from a given seed value before the sequence begins to repeat). The technique presented here also has a fixed string length, but it is much larger than that of its predecessors.

Present algorithms use the "congruence" method to produce random numbers a technique that is highly dependent upon the seed value. Certain seeds will cause congruence algorithms to generate short, nonuniform, or infinitely looped sequences. The technique shown in RANDOM.BAS does not possess this flaw to any great measure, and its string lengths are only slightly dependent on the initial seeds.

It involves shifting the bits of a number and adding the two previous terms to form a new term. Bit shifting ensures that successive terms will have very little correlation with each other.

The end of a string is reached when two consecutive numbers are produced that are identical to the first two produced. As expected, the length of the string increases as more bits are used, but the rate of growth is unprecedented. Presently no limit has been found for 16-bit strings after

30 hours of running on a PC.

This random number generator has been tested for average, variance, frequency, runs up and down, cycle breaking, seed dependence, chi-square, D-square, and cycle length up to 12 bits. No preferred pairs or preference for parity or primes has been observed.

Gary Andrew

Worksheet printer controls

I once wished for an easy way to put print attributes into Lotus 1-2-3 worksheets. The only method I knew for creating boldface print or underlining parts of a worksheet was to repeatedly use the Range and Setup string commands, but I would not call that easy. Recently I developed a technique that I have been using quite successfully: placing printer codes directly in worksheets.

To do this I first create some files that contain the control codes required by the printer to activate the various print enhancements. Each file contains the characters needed to activate one enhancement, and the files' names all end with the .PRN extension. I keep these .PRN files on my Lotus 1-2-3 system disk to allow selection of italic fonts, boldface, underlining, form feeds, and condensed print.

The trick is to read the desired file into a worksheet cell using Lotus 1-2-3's /File Import Text command. You

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will generally see some funny-looking characters on the screen, but you can ignore them; they are the IBM extended character-set representations for the print enhancement codes contained in the cell. If required, additional text can then be added to the cell using Lotus 1-2-3's edit mode. When Lotus 1-2-3 prints the cell, the printer switches to the desired mode until another printer control code is received.

You can use Basic or the EDLIN program on the DOS disk to create .PRN files with the proper codes for your printer. (You can also use DEBUG, if you know how.) Just make sure that you do not accidentally put a carriage return and linefeed into the files when you create them, or you will have extra lines on your printouts.

Check your printer manual for the proper control codes to activate the various print enhancements and fonts your printer is capable of producing. You may also need codes to turn them off.

If you have a keyboard enhancer such as ProKey, you can make the process of importing the enhancements into your worksheets completely painless.

Another way I enhance the printing of a Lotus 1-2-3 worksheet is by putting the printer control codes used by WordStar, my word processing program, into the worksheet, printing the worksheet to disk as a .PRN file, and then using the word processing program to send the .PRN file to the printer. For added power I set the worksheet's left margin at zero and put WordStar dot commands in the first column.

For example, using a WordStar dot command, I can control page breaks, something that is not easy to do using the print facilities of Lotus 1-2-3. Most popular word processing programs can be used to take advantage of these techniques.

Bill Castner

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Format fix

The FORMAT.COM program included on the DOS disk makes it all too easy to format the hard disk inadvertently on a PC XT. The program blandly asks the user to "Press any key to begin formatting C:" and, without further warning, proceeds to send any and all files on that drive into oblivion.

The steps shown in FORMAT0 and FORMAT1 are changes to the FORMAT.COM programs of DOS 2.00 and DOS 2.10, respectively, that will cause a return to the system prompt if any attempt is made to format a disk in a drive other than drive A: or drive B:

To make the changes, copy FORMAT.COM on to the fixed disk, place a disk containing DEBUG.COM in drive A: and type in the commands as shown in either FORMAT0 or FORMAT1.

I cannot verify that the FORMAT.COM program will be identical on every DOS 2.00 or DOS 2.10 disk, so you should be careful to ensure that the display on your screen matches the listing shown here except for the "xxxx", which will be replaced by different numbers, depending on the configuration of the machine.

Wilson Smith

DOS tips

I've discovered a few things about DOS 2.00 and 2.10 that I would like

to pass along to other readers.

First there is a bug in the redirection feature that occurs when

you use the append option, as with the command DIR>>DIRLIST. The problem is that EDLIN places a end-

```
C>a:debug format.com <Enter>
-u585 <Enter>
xxxx:0585 BA340C      MOV     DX,0C34
xxxx:0588 803E3D1400  CMP     BYTE PTR [143D],00
xxxx:058D 7403        JZ      0592
xxxx:058F BA740C      MOV     DX,0C74
xxxx:0592 E888FF      CALL    051D
xxxx:0595 E8A0FF      CALL    0538
xxxx:0598 E896FF      CALL    0531
xxxx:059B E893FF      CALL    0531
xxxx:059E C3          RET
xxxx:059F 8A164509    MOV     DL,[0945]
xxxx:05A3 FEC2        INC     DL
-a58f <Enter>
xxxx:058F int 20 <Enter>
xxxx:0591 nop <Enter>
xxxx:0592 <Enter>
-w <Enter>
Writing 1780 bytes
-q <Enter>
C>
```

Listing 1: FORMAT0 fixes the DOS 2.0 FORMAT utility

```
C>a:debug format.com
-u548 <Enter>
xxxx:0548 BAF60E      MOV     DX,0EF6
xxxx:054B 803EE51700  CMP     BYTE PTR [17E5],00
xxxx:0550 7403        JZ      0555
xxxx:0552 BA360F      MOV     DX,0F36
xxxx:0555 E888FF      CALL    04E0
xxxx:0558 E80700      CALL    0562
xxxx:055B E896FF      CALL    04F4
xxxx:055E E893FF      CALL    04F4
xxxx:0561 C3          RET
xxxx:0562 B8080C      MOV     AX,0C08
xxxx:0565 CD21        INT     21
xxxx:0567 B8000C      MOV     AX,0C00
-a552 <Enter>
xxxx:0552 int 20 <Enter>
xxxx:0554 nop <Enter>
xxxx:0555 <Enter>
-w <Enter>
Writing 1800 bytes
-q <Enter>
C>
```

Listing 2: FORMAT1 does the same for DOS 2.1

of-file market (EOF) at the end of its files, and the redirection feature appends data after the EOF mark.

Since the TYPE command and some programs cannot read past the EOF, the appended data appears to be missing. You can display the contents of the file by using the COPY command with the /B option

(COPY DIRLIST CON:/B),

but otherwise you might wonder what happened to the data.

Another fact many users apparently do not know is that the EDLIN program on the DOS disk provides a very easy way to put control characters into a file. The trick is to type

<Ctrl>-V

first, then type the capital letter corresponding to the control character you want. For example, <Ctrl>-VX puts a Control X into the file. This great way to create escape sequences that select the various screen control functions provided by the ANSI.SYS device driver.

It's discussed in the DOS manual

under "Information Common to All EDLIN Commands." To enter the Escape character (ASCII 27), type

<Ctrl>-V

and then a left square bracket([).

The third tip is that the ECHO command can be used to send escape sequences to ANSI.SYS and, with the redirection feature, to the printer. For example, the command ECHO [@ < PRN sends Escape-@ to the printer.

The only problem with this method is that there is no way to prevent the ECHO command from also sending a carriage return and line feed after the escape sequence.

Bob Stephan

File finder

With more than 500 files in 21 sub-directories on my hard disk, I frequently forget where any particular file is located. I use the command CHKDSK /V : FIND filename.ext to track them down. When CHKDSK is invoked with the /V option, it lists all the files with

their directory names in uppercase letters.

By piping the output to the DOS filter FIND instead of to the screen, I can search for any file (by placing the file name and the extension in uppercase letters between the double quotation marks) or group of files (by placing just an extension in uppercase letters between the double quotation marks).

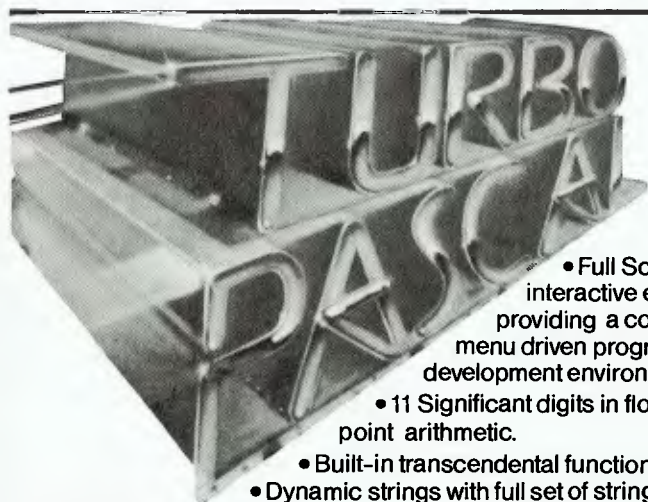
And the output can be redirected to the printer by appending the characters

XPRN.

Jim Weisz

Editor's note: CHKDSK.COM and FIND.EXE must be in the current directory of the default drive or in a directory available via PATH. Also, you can save yourself a few keystrokes by creating the following one-line batch file (called LOCATE.BAT):

CHKDSK /V : FIND "%1"



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```

A>DEBUG <Enter>
-A 100 <Enter>
xxxx:0100 MOV AH,9 <Enter>
xxxx:0102 MOV DX,109 <Enter>
xxxx:0105 INT 21 <Enter>
xxxx:0107 INT 20 <Enter>
xxxx:0109 DB 1B'[0;59;"DIR "p' <Enter>
xxxx:0117 DB 1B'[0;60;"DIR /W"p' <Enter>
xxxx:0127 DB 1B'[0;61;"*. "p' <Enter>
xxxx:0133 DB 1B'[0;62;"*. "p' <Enter>
xxxx:0143 DB 1B'[0;63;"COPY "p' <Enter>
xxxx:0152 DB 1B'[0;64;"ERASE "p' <Enter>
xxxx:0162 DB 1B'[0;65;"EAZE ";13p' <Enter>
xxxx:0174 DB 1B'[0;66;"BASIC ";13p' <Enter>
xxxx:0187 DB 1B'[0;67;"MORE <"p' <Enter>
xxxx:0197 DB 1B'[0;68;"EDIT "p' <Enter>
xxxx:01A6 DB 1B'[0;120;"MYKEYS ";13p' <Enter>
xxxx:01B8 DB 1B'[0;129;"NOKEYS ";13p' <Enter>
xxxx:01D0 DB '$' <Enter>
xxxx:01D1 <Enter>
-U 100 108 <Enter>
xxxx:0100 B409 MOV AH,09
xxxx:0102 BA0901 MOV DX,0109
xxxx:0105 CD21 INT 21
xxxx:0107 CD20 INT 20
-D 109 100 <Enter>
xxxx:0109 1B 5B 30 3B 35 39 3B .[0;59;
xxxx:0110 22 44 49 52 20 22 70 1B-5B 30 3B 36 30 3B 22 44 "DIR "p.[0;60;"D
xxxx:0120 49 52 20 2F 57 22 70 1B-5B 30 3B 36 31 3B 22 2A IR /W"p.[0;61;"*
xxxx:0130 2E 22 70 1B 5B 30 3B 36-32 3B 22 2E 2A 20 22 3B ."p.[0;62;"*. ";
xxxx:0140 31 33 70 1B 5B 30 3B 36-33 3B 22 43 4F 50 59 20 13p.[0;63;"*COPY
xxxx:0150 22 70 1B 5B 30 3B 36 34-3B 22 45 52 41 53 45 20 "p.[0;64;"ERASE
xxxx:0160 22 70 1B 5B 30 3B 36 35-3B 22 45 41 5A 45 20 22 "p.[0;65;"EAZE "
xxxx:0170 3B 31 33 70 1B 5B 30 3B-36 36 3B 22 42 41 53 49 ;13p.[0;66;"BASI
xxxx:0180 43 20 22 3B 31 33 70 1B-5B 30 3B 36 37 3B 22 40 C ";13p.[0;67;"M
xxxx:0190 4F 52 45 20 3C 22 70 1B-5B 30 3B 36 38 3B 22 45 ORE <"p.[0;68;"E
xxxx:01A0 44 49 54 20 22 70 1B 5B-30 3B 31 32 30 3B 22 40 DIT "p.[0;120;"M
xxxx:01B0 59 4B 45 59 53 20 22 3B-31 33 70 1B 5B 30 3B 31 YKEYS ";13p.[0;1
xxxx:01C0 32 39 3B 22 4E 4F 4B 45-59 53 20 22 3B 31 33 70 29;"NOKEYS ";13p
xxxx:01D0 24 $
-N MYKEYS.COM <Enter>
-R BX <Enter>
BX 0000
:0 <Enter>
-R CX <Enter>
CX 0000
:D1 <Enter>
-W <Enter>
Writing 00D1 bytes
-Q <Enter>
A>

```

Listing 3: KEYDEFS
shows screen
display for key
redefinition
techniques.

Key reassignments with DEBUG

Readers without the Macro Assembler can enjoy the benefits of key redefinition by using the DOS 2.xx version of DEBUG to assemble the necessary statements.

KEYDEFS shows the screen

output as you use this technique to create the file MYKEYS.COM, which defines keys <F1> through <F10>, <Alt>-1, and <Alt>-0. You can create a file to implement your own set of key definitions by entering the four assembly statements followed by as many lines of characters as are

needed for your function key definitions. After the definitions are entered, add the line DB '\$', which adds a dollar sign, used by DOS to mark the end of text to be output.

When you have typed this line, press the <Enter> key twice to get the hyphen prompt. Use the

Unassemble and Dump commands to verify that you have entered the assembly language statements and key definitions correctly. After the lines have been entered correctly, use the Name command to assign a file name ending with the .COM extension.

Use the command R CX to display the contents of register CX and enter the length of the program in

response to the colon prompt. The program's length is the offset value that appears on the line below the '\$' entry, minus 100 hexadecimal.

In KEYDEFS the value is 01D1, so MYKEYS.COM is 00D1 bytes long. The W command writes the newly entered program on the disk with the name you selected earlier, stating the number of bytes being written.

The Quit command returns control

to DOS. You can use the Quit command any time you have the hyphen prompt, but everything you have entered will be lost unless you first use the Write command to store it on disk. The Quit command is a good way to stop everything and start over if you have made mistakes. The DOS manual explains more about how to use DEBUG.

Michael Gabel



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Name	Manufacturer	Distributor	RRP	Min. req.	Comment
Tim IV	Innovative Software	Sourceware	\$599	128K 2DD	Menu Driven
dBase II	Ashton-Tate	Arcom Pacific	\$540	128K 1DD	Business R/base
dBase III	Ashton-Tate	Arcom Pacific	\$795	256K 2DD	Development dBase
Knowledgeman	MDBS	Base Management	\$854	256K 2DD	
	Systems				
Dataflex	Data Access Corp.	Intelligence	\$1200	128K 2DD	
Condor III 20	Condor Computer Corp.	Multisoft	\$555	128K 1DD	
RBase	Cosmos	Imagineering	\$630	256K 2DD	
Data Base Manager II	Alpha Software	SCA	\$395	192K 2DD	
Datastore	Software Connections	Telecomputing	\$650	256K	
Friday	Ashton-Tate	Arcom Pacific	\$325	64K	
Cardbox	Caxton	Imagineering	\$328	64K	
Milestone	Digital	Arcom Pacific	\$349	256K 1DD	
Harvard Project Manager	Harvard Software	Sourceware	\$599	128K 1DD	
Micro-FCS	EPS	EPS Consultants	\$2500	192K 2DD	
PFS: File	Software Publishing	Imagineering	\$175	64K 1DD	
Access Manager	Digital Research	Cullinet Software	\$499	12K	
InfoStar/StarBurst	Micro International	Multisoft	\$961	128K	
dBase II Multi-user	Ashton-Tate	Arcom Pacific	\$1095	192K	
8080 Forth	Laboratory Microsystems	Micro Models	\$125	128K 1DD	

PC SOFTWARE DIRECTORY

LANGUAGES

Name	Manufacturer	Distributor	RRP	Min. req.	Comment
Basic Compiler	Microsoft	Microsoft	\$525	64K 1DD	PC World Nov 84
Business Basic Comp.	Microsoft	Microsoft	\$807	64K 1DD	
C Compiler	Microsoft	Microsoft	\$658	128K 1DD	
C Compiler	Digital Research	Arcom Pacific	\$466		PC World Aug 84
Fortran Compiler	Digital Research	Arcom Pacific	\$620	96K	
CBasic Compiler	Digital Research	Arcom Pacific	\$721	64K	
Cobol Compiler	Microsoft	Microsoft	\$875	128K 2DD	
Fortran Compiler	Microsoft	Microsoft	\$544	160K 2DD	
Pascal Compiler	Microsoft	Microsoft	\$544	160K 2DD	
Pascal MT+	Digital Research	Arcom Pacific	\$788	64K 2DD	(16-bit)
Basic Interpreter (GW-Basic)	Microsoft	Microsoft	\$464	64K 1DD	
APL/PLUS PC	STSC Inc.	Sourceware	\$1199		APL Prog. Language
Basic Compiler	IBM	IBM (Aust)	\$524	64K 1DD	PC World Nov 84
Cobol Compiler	IBM	IBM (Aust)	\$1155	64K 2DD	
Fortran Compiler	IBM	IBM (Aust)	\$616	128K 2DD	Fortran 77 standard
UCSD Fortran Compiler	IBM	IBM (Aust)	\$1077	64K 2DD	extended compiler
Pascal Compiler	IBM	IBM (Aust)	\$515	128K 2DD	PC World Apr 84
UCSD Pascal Compiler	IBM	IBM (Aust)	\$1077	64K 2DD	
Lattice C	US	Fagan	\$555	128K	8086-8088 Microsystems
Assembler & Tools	Digital Research	Cullinet Software	\$260	64K/128K	
CBasic Compiler	Digital Research	Cullinet Software	\$721	64K/128K	
Fortran 77 Compiler	Digital Research	Cullinet Software	\$620	96K 1DD	
Personal Basic	Digital Research	Arcom Pacific	\$206	76K 1DD	
Dr Logo	Digital Research	Arcom Pacific	\$214	192K	
Access Manager	Digital Research	Arcom Pacific	\$499	12K 1DD	
Display Manager	Digital Research	Arcom Pacific	\$614	96K 1DD	
PL1	Digital Research	Arcom Pacific	\$915	128K 1DD	

COMMUNICATIONS

Name	Manufacturer	Distributor	RRP	Min. req.	Comment
Asynchronous Communications Support	IBM	IBM (Aust)		64K 1DD	Emulates an ASR 33/35 TTY terminal
Crosstalk	Microstuf	Sourceware	\$295	96K 1DD	#1 Asyn. package
Ascom	US	Fagan	\$245	96K 1DD	

DISTRIBUTORS

Logica Pty Ltd
15 Walker St
North Sydney NSW 2060.
Phone: (02) 436 1700

Microsoft
PO Box 95
Forestville NSW 2087
Phone: (02) 452 5088

SCA Software Corp of Australia
449 Swanston St
Melbourne Vic 3000.
Phone: (03) 347 7011

Software Suppliers
7 Avon Rd
North Ryde NSW 2113.
Phone: (02) 888 1955

Sourceware
4/73 Albert Ave
Chatswood NSW 2067.
Phone: (02) 411 5711

Arcom Pacific
252 Abbotsford Rd
Mayne, Qld 4006.
Phone: (02) 52 9522

Imagineering
579 Harris St
Ultimo NSW 2007.
Phone: (02) 212 1411

Intelligence
204 Clarence St
Sydney NSW 2000.
Phone: (02) 267 1711

IBM (Aust)
168 Kent St
Sydney NSW 2000.
Phone: (02) 234 5678

FMS Fagan Microprocessor Systems
95 Canterbury Rd
Middle Park Vic 3206.
Phone: (03) 699 9899

Multisoft
1121 Hay St
West Perth, WA 6008
Phone: (09) 322 6637.

PC Extras
186 Pacific Hwy,
Greenwich NSW 2065.
Phone (02) 43 4322.

SOFTWARE

What a Honeywell

GEEBAN Pty Ltd has announced the release of a locally developed software package said to enable a PC to function as a Honeywell VIP7200 display terminal. The emulator is said to be able to accept and display data arriving at a continuous rate of up to 9600 bits/sec without needing internal buffering. There is an optional buffer of up to 64K-bytes which may be configured when the program is loaded. This feature allows the user to review messages that may have disappeared off the top of the screen. An additional load-time option is said to allow selection of the asynchronous communications adapter to be used (COM1 or COM2). The PC-DOS Mode command is used to configure the adapter for baud rate. All the keys on the VIP7200 keyboard have been mapped into the IBM-PC keyboard and all VIP7200 display control codes are supported.

Further information: Geeban Pty Ltd, 637 Darling St, Rozelle, NSW 2039. Tel: (02) 818 1822.

Fatter SuperCalc

SUPERCALC3 Version 2, released by Arcom Pacific includes FastMath with claimed support for the 8087 maths co-processor chip. Maximum spreadsheet size is said to have been increased to 9999 rows by 127 columns. Databases of up to 9998 records are said to be handled. Graphics of the original SuperCalc3 have been upgraded to support the enlarged spreadsheet size. Other features include Solve (which is said to iteratively recalculate cell values if they cannot be calculated in one pass), faster speeds, a utility which rotates the output by 90 degrees to print wide; national order calculations, said to automatically resolve forward references in spreadsheet. PC-DOS file path support, and whole-screen movement keys. Graphs can be displayed without a color monitor, although a color graphics adapter is required to see graphics in color. No special installation is said to be necessary.

Further information: Arcom Pacific, 252 Abbotsford Rd, Mayne, Qld 4006. Tel: (07) 52 9522. Telex: AA44187. Fax: 07.52.7820.

More Mirages

DIMENSION Graphics has released three new programs of the Mirage graphics software library including Autumn "Automatic Mirage", a menu-driven entry level business graphics package. Autumn comes with a Chart book of more than 100 standard graphics in color pictures. Autumn like the new (Virtual Rasteriser) and the Ego bit-type digitiser works together with the Mirage Version 4.0 released in October. With VR, a Lotus PIC file can be reproduced in high quality on the Polaroid Palette, Tektronix 4695 inkjet plotter or Matrix QCRD 4000 high resolution camera. Ego supports popular digitisers from Summagraphics, the Bitpad one, Bitpad Two and MM series. Free form drawings can be produced with its powerful commands, selected from a menu on the digitising pad. Mirage Version 4.0 is said to contain many enhancements, including support for a greatly expanded number of high resolution output devices, for example, Tektronix inkjet plotters, Diablo inkjet plotters, and the Tecmar, Conographics and Number Nine cards on the IBM PC.

Further information: Dimension Graphics, 265 Miller St, North Sydney, NSW 2060. Tel: (02) 929 5855.

Improvements

THE KnowledgeMan family of products now includes several enhancements. Among the features are: On-line Help for any command context. 380 help screens. New DOS access capability to run external programs and execute DOS commands from within KnowledgeMan; KnowledgeMan V1.07 will be compatible with MDBS III, and users may directly execute any MDBS DML command; KText, the integrated full-screen text processing component, will be available; The KGraph option now offers 16 background colors, 12 foreground colors and supports plotters; The enhanced KMouse option supports Microsoft's mouse.

Further information: MultiSoft, 1121 Hay St, West Perth, WA 6005. Tel: (09) 3226637.



Presentation Master produces slides and prints in minutes.

Affordable graphics

POLAROID and Digital Research have teamed up to provide a desktop film studio with Presentation Master, a package including both hardware and software. The image recorder is a shoe box-sized attachment to personal computers. Two types of cameras are provided — one to produce instant 72mm x 95mm prints and the other for instant 35mm slides. The software includes Digital Research's DR Graph and DR Draw. DR Graph allows users to produce eight different kinds of graphs. DR Draw adds the capability to create presentation transparencies. Word charts, flow charts, organisational charts or detailed drawings may be made from scratch. The resolution of slides and prints is claimed to be increased by 400 per cent over that shown on screen while the number of colors which can be used at one time is doubled to eight. The system requires a color graphics card, and IBM PC (or compatible) with a serial port and 256K-bytes of RAM. Arcom Pacific has also released Fortran 77, claimed to be a full implementation to ANSI 77 standard, by Digital Research. Fortran 77 runs under CP/M-86, MS-DOS and PC-DOS. Fortran 77 is said to be particularly well suited for representing algebraic expressions for use in vector and matrix arithmetic and for solving problems requiring complex arithmetic. It supports the 8087 maths coprocessor, allows optimisation of small programs,

has overlay capability, extensive data type support, 64K-bytes element arrays, array subscript checking option, 40 character variable names, complete program development tools and compatibility with other DRI products.

Further information: Arcom Pacific, 252 Abbotsford Rd, Mayne, Qld 4006. Tel: (02) 52 9522.

Touchstone PCworks

CROMEMCO has released the PCworks software program, developed by Touchstone Software Corp, for its new series of Unix System V computer systems. PCworks is said to provide ways of attaching PCs and compatibles to the System 100 and System 300 multi-user Unix systems. The PCworks package consists of five software modules, four of which run on the PC and one, the Network Server, which runs on the Cromemco Unix System. The modules running on the PC include the PCworks menu system, the terminal emulator, the configuration manager and the mail/file network interface. PCworks uses 46K-bytes of memory on the Cromemco Computer and is compatible with PC-DOS 2.0 or PC-compatible MS-DOS 2.0.

Further information: Insystems Pty Ltd, 337 Moray St, South Melbourne Vic 3205. Tel: (03) 690 2899.

SOFTWARE

Fast courier transform

EFFECTIVE Computer Services Pty Ltd, a software company specialising in the transport industry, has developed a software package for courier companies of all sizes. The Courier Accounting System is the company's first package in its Effective Transport Series and is available in four separate modules — invoicing, debtors, sales analysis and driver payments. The Courier Accounting System is said to provide immediate access to client, driver and sales information; handle job pricing with manual override and without coding of courier dockets. The rate schedule can include basis charge, and rates such as kilometre, hourly, item, waiting time, extra/multiple drop charges, minimum charges and excess weight rates. The processing cycle can be either weekly, fortnightly or monthly, according to company requirements. The system costs \$A4970. It has been designed to run on the NEC APC microcomputer.

Further information: Effective Computer Services, Office C3, 2nd Floor, Market Place, Flemington Markets, Flemington 2140. Tel: (02) 764 4077.

Answer reaches micros

DATEC Pty Ltd has released Micro/Answer, a suite of programs designed to link the IBM PC user to virtually any data on an IBM mainframe.

Micro/Answer is said to offer specific support for Lotus 1-2-3, Symphony, dBase II and III, Framework, Friday! and VisiCalc.

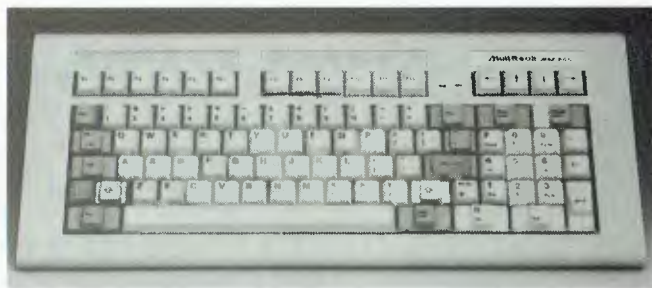
The link software is built around the Informatics General Corp's mainframe data extraction tool, Answer/DB. Micro/Answer reportedly provides transparent access to IMS, DL/1, IDMS/R, Adabas, Total, VSAM, ISAM and others. It operates under the IMS/DC and CICS telecommunications monitors via asynchronous communications, or by 3270 emulation using DCA's Irma board or the Forte board from Forte Data Systems. System requirements include an IBM PC or PC XT, video monitor, 2 dual-sided double-density diskette drives (or one diskette and hard disk), communications adapter, modem; or Irma board; PC-DOS 2.0 or 2.1; 256K-bytes minimum RAM; asynchronous, or 3270 emulation protocols and an IMS-DC or CICS (OS or DOS) mainframe environment.

Further information: Datec Computer Services, 220 George St, Sydney 2000. Tel: (02) 241 1601.



The Courier Accounting System runs on the NEC APC.

PERIPHERALS



The MAK-PC keyboard offers extra function keys.

PC keyboard, monitor

MULTITECH Industrial Corporation has launched the MAK-PC/C, a keyboard designed for use with the IBM PC and compatibles. It uses capacitive-type contacts to give positive tactile feedback necessary for faster, more accurate typing. The 12 function keys are placed on the top row for more convenient data entry. Four cursor movement keys are positioned separate from the numeric keypad to prevent conflict with the numerical function keys. The keyboard's 90 keys support the extended ASCII set of 256 characters, including scientific notation and foreign language characters for the IBM PC. Special keys allow screen dump print out or clearing of the video screen in certain operating modes. The keyboard height is adjustable for different typing positions, and keytops are contoured. Multitech also released the MDM-12, a high resolution, 12in monochrome monitor for the IBM PC and compatibles. It requires a monochrome display adapter. The MDM-12 has a bandwidth of 18MHz for easy-to-read text and precise graphics.

Further information: Multitech Industrial Corporation, 266 Sung Chiang Rd, 9F, Taipei, Taiwan, R.O.C.

NEC ups speed

NEC has introduced a letter-quality printer claimed to operate at 55 chars/sec. The 8800 Spinwriter features automatic thimble-sensing which sets the correct pitch for the type style used. It is fully compatible with other NEC printers. Using a special interface module, the 8800 is also fully IBM compatible.

Further information: NEC Information Systems Australia Pty Ltd, 99 Nicholson St, St Leonards, NSW 2065. Tel: (02) 438 3544.

Your diary

THE Computer Diary and Log Book is said to overcome the often neglected task of keeping proper records. The 195-page book contains three main sections. The first is the Procedure Manual with forms headed up, with associated explanations, for the usual operating procedures: power up, start up, mounting and removing a disk tape, computer failure, recovery from failure, back-up and rebooting. The second is the Diary, including dates of holidays, forward planner, and a daily diary for recording the computer's day to day operations over a year. The diary section provides for general meetings, faults, operational hours, downtime, back-up, details and associated comments. The Computer Diary and Log Book has a recommended retail price of \$39.50.

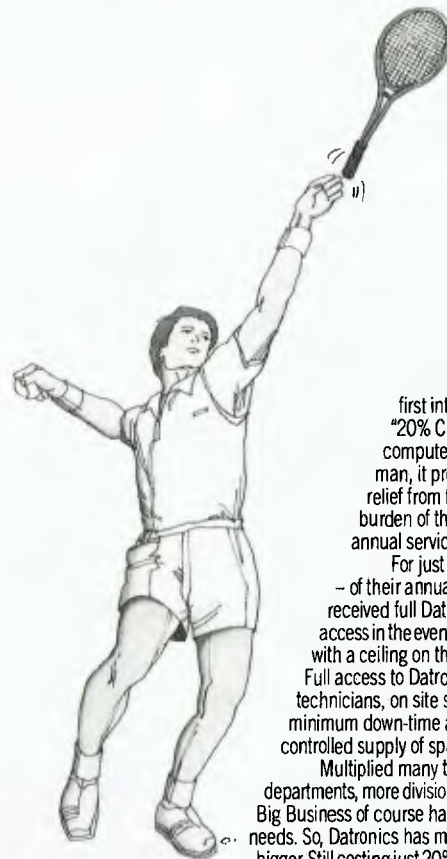
Further information: The Computer Diary and Log Book, PO Box 339, Dee Why, NSW 2099.

PC-Slave

PC-SLAVE, said to be capable of connecting up to 31 users to a single PC, and which operates at up to 10 times the speed of existing IBM local area network technology, is being released in Australia by Alloy Computer Products. PC-Slave is a plug-in card which has its own 8088 processor operating at 8MHz, two serial ports, and up to 1M-byte of RAM on board. The slaves operate at twice the speed of the host PC.

Further information: Alloy Computer Products, 325 Chapel St, Prahran, Vic 3181. Tel: (03) 51 5278.

For the computerised corporation, A radical change in service.



When Datronics first introduced the "20% Club" for the small computerised businessman, it provided welcome relief from the financial burden of the standard annual service contract.

For just one-fifth – 20% – of their annual contract they received full Datronics service access in the event of a breakdown, with a ceiling on the cost of a call. Full access to Datronics' skilled technicians, on site service, and the minimum down-time assurance of a controlled supply of spare parts.

Multipled many times by more departments, more divisions and functions, Big Business of course has much bigger needs. So, Datronics has made their 20% bigger. Still costing just 20% of the standard

annual fee, except that it now caters for corporate flexibility.

No more hefty service contract lump sums up front. Just 20%.

So perhaps the "20% Corporate Club" would be better described as a radical change in corporate service payment.

The service, after all, is still Datronics' finest.

For complete details on the "20% Corporate Club" and other Datronics'

corporate service contract options, phone Datronics on:
Sydney 887 9333, Newcastle 2 4838, Canberra 80 5332, Melbourne 534 8192,
Adelaide 42 4831,
Perth 364 7077,
Brisbane 44 6351,
Hobart 34 9900.



I'd like to know more about Datronics "20% Club". Please send details.

Name Phone

Company

Address

Postcode

Bankcard No.

Equipment Type Model

To: Datronics Corporation, 376-380 Lane Cove Road, North Ryde, NSW 2113.

Multimode printer

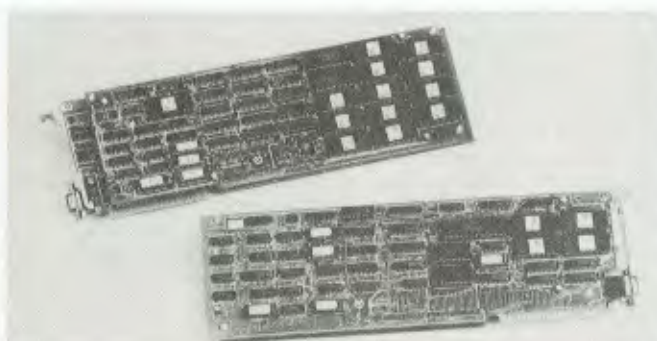
DATASCAPE has released the NDK model 5025 multimode printer, which uses a 24-pin head. The printer has built-in fonts. The 5025 can be made to act like any printer. If high resolution graphics is to be used, for instance, the 5025 can be placed in IBM Epson mode or can, under Lotus 1-2-3, be placed in Toshiba 1350 mode for high-resolution single pass graphics using all the 24-pin wires. The NDK 5025 comes standard with friction roller and tractors.

Further information: Datascape Int. Pty Ltd, 44 Avenue Rd, Mosman NSW 2088. Tel: (02) 969 2699.

Chinese card

MULTITECH Industrial Corp has developed an add-on card said to allow a PC or compatible machine to run Chinese application software and print hard copy in Chinese. The CCC-PC Chinese Character Generator Card fits into a PC expansion slot to create a multi-lingual system capable of running Chinese application software packages which run with the CCC-PC include Chinese word processing, database, spreadsheet, and graphics. The CCC-PC is said to store 17,000 Chinese characters in a 2-byte internal character code. The card, designed by Multitech's R&D Department in Taipei, supports IBM compatible TTL input monochrome monitors with a 40 x 25 display for Chinese characters and an 80 x 25 display for ASCII characters. A 16 x 16 character box provides well-defined resolution for even the most complex Chinese characters.

Further information: Multitech Industrial Corp, 266 Sung Chiang Rd, Taipei, Taiwan, ROC.



Multitech's chinese character card for PC compatibles.

IBM PC POS terminal

HRC Holdings has developed the PC Cashier, a retail device fitted with a 7in screen, a 16 character dot matrix audit printer, up to 114 programmable keys, and up to 300K-bytes of CMOS memory. Magnetic card reader, light pen and customised keyboard overlays are options. The unit will cost about \$4000, depending on the options required. In its smallest configuration, it is claimed that a single PC Cashier terminal can be connected to a diskette-based IBM PC. In large configurations, a cash register connected to an IBM XT would process the cash transactions and simultaneously the PC XT would process reports or be used for other applications such as word processing and spreadsheets.

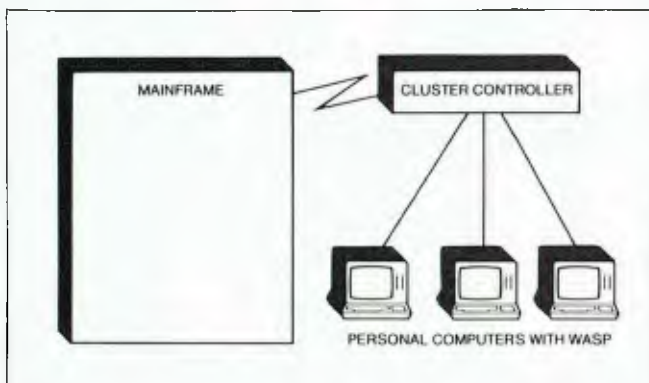
Further information: HRC Holdings Pty Ltd, 2nd Floor, 10-12 Clarke St, Crows Nest, NSW 2065. Tel: (02) 439 8544.

Scanners launched

INPUT Technologies has been formed to market optical and bar code scanners of the Caere Corporation, and is looking for local dealers. The products include models in Caere's 500 OC reader system, as well as its Series 200 bar code scanners. Caere optical scanners read alphabetic and numerical symbols in six different type faces while its bar code scanners read most popular bar codes. They operate with slot readers or hand-held wands. A simple interface device is said to allow OCR or bar code input to IBM PCs or compatibles.

Further information: Input Technologies Pty Ltd, 1 Chandos St, St Leonards, NSW 2065.

SYSTEMS



The Philips PC has been released with PC-mainframe linking hardware.

Philips PC out

PHILIPS has released its 16-bit 128K-byte personal computer, the P3100, an IBM-compatible PC designed primarily for management use. Memory can be expanded to 512K-bytes. It can be used as a standalone or a terminal in a network. The P3100 directly links to standard equipment such as a monitor, printer or modem without need for extra cards in its four expansion slots. Memory, too, can be expanded on the main board. Standard software supplied with the P3100 includes MS-DOS 2.00, GW-Basic, and the Philips Tutor. The company also released Wasp, a new software package to link a PC to mainframes. Wasp (Workstation Automatic Script Processor) automates the entire process of micro-to-mainframe linking. Wasp runs on the P3100 and other IBM-PC compatible systems, under PC-DOS or MS-DOS with a minimum of 128K-byte RAM and one floppy disk drive. Interface hardware for IBM 3270 emulation such as the Irma board is required. The PC is linked to the mainframe cluster controller via standard coaxial cable. For VT100 emulation, the standard RS232C/V24 port is used. Other emulator boards are under consideration. There are also plans to provide Wasp packages for other communication protocols, including SDLC and X.25.

Further information: Philips, 15 Blue St, N Sydney, 2065. Tel: (02) 925 3281.

Sharp computer

SHARP Corp has released the MZ5600, an upgraded version of its 16-bit personal computer, in Australia. The MZ5600 is based on the 8086 chip processing at 8MHz, and is said to handle complex graphics and data processing. The machine has multi-window facilities allowing text, tables and graphics to be transferred, a bit-mapped display, high resolution screen image, optional mouse and hard disk drive. The floppy disk drives



have storage capacity of 640K-bytes. MS-DOS comes bundled. IMS, IAL, BCP, Compact, Padmede, Carpe and Davidson supply the accounting software, and vertical market packages encompass real estate, video hire, medical, travel, agricultural and public accountants.

Further information: Sharp Corp of Australia Pty Ltd, 64-72 Sackville St, Fairfield, NSW 2165. Tel: (02) 728 9111.

TI color portable

TEXAS Instruments has released a portable microcomputer with an optional builtin 23cm color display, high-resolution graphics and memory expansion of up to 768K-bytes. The TI Portable Professional Computer, is said to be IBM PC compatible. It can be fitted with a 10M-byte Winchester disk drive. The color portable reportedly supports a range of communication products, including TI's own EtherSeries of local area network, as well as its speech command system. The TI Portable is designed for professionals and executives who need to acquire information, analyse data and communicate wherever they are.

The Winchester option allows large databases or multiple programs to be carried along. The drive is shock-mounted.

Further information: Texas Instruments Australia Ltd, 5th Floor, 418 St Kilda Rd, Melbourne 3004. Tel: (03) 267 4677.

Almost-lap power

TELECOMPUTING PCS has introduced a 80186-based portable computer manufactured by STM Electronics. The STM PC, although not quite lap-sized, is said to eliminate the need for expansion boards. It features a full (80 column by 25 line) LCD. Other features include the built-in modem with auto-dial, auto-answer direct connect features complying with Bell 103/202, CCITT V.21/23 specifications; a speaker phone with adjustable volume, muting and a 20-name and number directory; and a 40/80 column text and graphics thermal printer with screen dump capabilities. The machine's 80186 processor, operates at 8MHz. The monochrome LCD screen has a resolution of 640x200 pixels. Color output is 15 colors with 320x200 pixels in high resolution monochrome graphics mode. The double-sided, double density disk drives are made by Canon. I/O Ports included are one Centronics parallel, two RS232C, one SCSI hard disk interface and a PC I/O bus expansion connector. The STM PC is said to run Flight Simulator, WordStar, and Lotus 1-2-3. The machine is packaged with MS-DOS 2.11.

Further information: Telecomputing PCS, 2nd Floor, 156 Pacific Highway, St Leonards, NSW 2065. Tel: (02) 439 5966.

INDUSTRY

Toshiba price cuts

TOSHIBA (Australia) Pty Ltd has cut average prices for its P13XX range of 24-pin dot-matrix printers 25 per cent. The range is said to provide letter quality, draft mode and graphics output. The top of the line P1351, announced only recently, has been reduced from \$2920 to \$2244 excluding tax. The P1350, which offers two fonts as standard, has been reduced from \$2455 to \$1985 excluding tax. The P1340 has been reduced to 31 per cent from \$1450 to \$995 excl. tax.

Further information: Toshiba (Australia) Pty Ltd, 84-92 Talavera Rd, N Ryde, NSW 2113. Tel: (02) 887 3322.

Parity ups Tempo

PARITY Computers Limited will distribute the advertising package, Tempo, and provide product support in four States. Tempo was developed over the past 18 months and caters for Australian advertising agencies, with media, job-bag, finance and traffic applications. The Tempo system reportedly produces all media schedules, confirmations, contracts, financial reports, invoices for the accounts department, prepares budgets and handles planning information, including regional breakdowns and cost efficiencies. Tempo says major product support would continue to be provided by Tempo, backed by Parity in Sydney, Melbourne, Brisbane, Adelaide and Canberra. **Further information:** Tempo Sydney, 40 Miller St, Nth Sydney, NSW 2065. Tel: (02) 929 6300.

Italian connection

OLIVETTI and AT&T have announced an agreement which strengthens the relationship between both companies in the personal computer and workstations areas. Both partners will manufacture the new line of personal computers and workstations, and both will market the AT&T 3B minicomputers and the Unix operating system. Olivetti will continue manufacturing and supplying to AT&T for the US market the PC 6300 personal computer designed by Olivetti and enhanced to AT&T specifications. The PC 6300 belongs to the same family of personal computers designed, developed, produced and sold by Olivetti on all markets under the trade-mark M24.

HiSoft expands and starts BBS

HISOFT has changed its name to HiSoft Australia Pty Ltd and established a new national headquarters at 598 St Kilda Rd, Melbourne. The company has also set up a public access bulletin board service for customers and PC users in general. the HiSoft Microboard has already logged more than 1000 calls from users. It is available 24 hours a day for messages and program exchange on (03) 799 2001.

Palette available

THE Polaroid Palette personal computer image recorder is now available in all mainland States. Introduced to Australia in August, the Palette system is a software driven peripheral said to produce Polaroid 35mm instant color slides, conventional color transparencies or Polaroid instant color prints, of data displayed on the monitors of compatible small business computers.

Further information: Polaroid Australia Pty Ltd, 31 Waterloo Rd, N Ryde, NSW 2113.
Tel: (02) 887 2333.



The Polaroid Palette is now available across Australia.

Integrated supplies

DATA #3, a new computing and office equipment and supplies group, was recently launched in Brisbane. Data #3 was created on the twin bases of IBM support-software company, Powell Clark and Associates (PCA) and a professional office equipment and service firm, Albrand Typewriters and Office Machines. Starting out with a staff of about 80 (more than 45 of them programmers), Data #3 aims to support business managers in the development of appropriate information systems and to supply and service the highest quality equipment and software. It will supply anything from paperclips to an IBM System 4300 computer and operating software. Based on that operation, the Data #3 Office Centre will provide service and supplies for typewriters, word processors, IBM Personal Computers and IBM's larger computer systems.

Further information: Data #3 Professional Services, 185 Moggill Rd Taringa, Qld 4068.
Tel: (07) 371 8088.



Open Access is now available for the TI PC.

Professional Access

TEXAS Instruments has released the Open Access management package for use with its series of Professional Computers. Open Access includes an electronic spreadsheet, word processor, appointment scheduler, telecommunications module and three-dimensional graphics, all working together as if they were one single program. Open Access also provides access to as many as five Information Manager files simultaneously. On request, this program will scan up to five files for selected data, then consolidate all the data in a new file. The electronic spreadsheet provides virtual memory, allowing up to 28,000 entries per model and up to six split-screen windows with the ability to view and work on four models simultaneously. The Time Management module provides user access to an efficient "fill-in" calendar for all appointments and schedules. It also allows the user to view the day's schedule at a glance or keep essential names, addresses and telephone numbers on file. The software package costs \$A995.

Further information: Texas Instruments Australia Ltd, 5th Floor, 418 St Kilda Rd, Melbourne 3004.
Tel: (03) 267 4677.

IBM closes Shop

IBM Australia has closed The IBM Shop, in Sydney. Customers will be able to buy typewriters, PCs and supplies from IBM's authorised dealer network or direct from IBM.

Sanyo tops Source

SANYO Office Machines Pty Ltd, under an agreement with specialist software supplier, Software Source, will market programs in conjunction with its MBC 550 PC. Software Source's managing director, Greg Lister said his company will supply Sanyo and its dealers with a complete range of educational, games, word processing, spreadsheet, graphics and home accounting software.

Further information: Sanyo Office Machines, Level 5, 5 Harbour View Crescent, Milsons Point, NSW 2061.
Tel: (02) 929 4644.

Pan Pacific

TWENTY computer societies throughout the Pacific Region, representing countries in the Pacific Basin, NZ, China, Canada and the US have been invited to participate in the First Pan Pacific Computer Conference. PPCC-1 is being organised by the Australian Computer Society under the sponsorship of the International Federation for Information Processing Societies. As well, 200 calls for papers have been sent to computer publications throughout the world. The organising committee, hopes to attract 500 international delegates as well as 1500 from throughout Australia. The accompanying exhibition is expected to attract more than 50,000 people. The conference theme is Software - The Driver. The conference will be held in Melbourne next September 10-13 at the Royal Exhibition Building.



About IBM PCs and compatibles

NEXT ISSUE

OH NO! — NOT ANOTHER WORD PROCESSOR?

After recovering from his recent tussle with psychological assessment software, the untiring Les Stein returns to the fray, plunging headlong into another PC word processing package. This time Les examines Officewriter, a word processor with a difference.

INTRODUCING PRINTER BUFFERS

Any PC application involving lengthy printouts can benefit from the addition of a printer buffer, which may be implemented in either software or hardware. But just what is a printer buffer and how does one work? Ian Robinson explains printer buffers in theory and in practice.

XENIX REVEALED

Microsoft's Xenix is once again enjoying the software limelight since the launch of the PC AT, but what does this Unix-like language really offer you, the PC user? Is Xenix more than just the latest trendy word used by PC dealers at cocktail parties? Chess Wade investigates.

WORLD CLASS PC AWARDS

At last the counting is complete and the time is right for announcing the winners of the PC industry's equivalent to the Logies! Yes, that's right folks — the World Class PC Awards for 1984 have finally been announced. Discover which hardware and software products have been voted into the top spots by our readers over the past year.

C-V-P ANALYSIS WITH LOTUS

Cost-volume-profit analysis has long been a fundamental financial planning tool in the corporate world, however, it can be readily adapted to almost any sized business. Donald Hunt explains how to exploit the C-V-P method using Lotus 1-2-3 templates and some creative programming.

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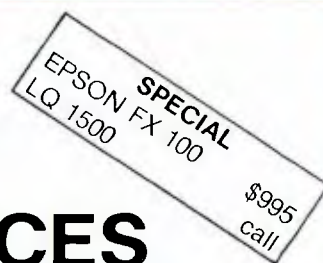
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